INSTALLATION INSTRUCTIONS

Harmony Nexus™ Equipment Management System
Fixed Suspension Tube with Fixed Pendant

(REV. A 01/08/13) **10023649**

A WORD FROM STERIS CORPORATION

This manual contains important information on the installation procedures for the Fixed Suspension Tube with Fixed Pendant of the Harmony Nexus™ Equipment Management System. Follow each step of the installation instructions **in the order presented.** If you find any indication of damage to the equipment (no matter how slight), show it to your supervisor.

To properly install this unit, you will need the Equipment Drawings (previously furnished), showing all utility service and space requirements. If drawings cannot be located, replacement copies may be obtained by writing, faxing or telephoning STERIS giving the serial and model numbers of your equipment.

Once installed, equipment operation should be tested by a qualified service technician prior to your usage of the equipment. Any ancillary equipment (i.e., monitors, video recorders, etc.) that is to be used with the Harmony Nexus Equipment Management System must comply with all applicable medical equipment standards.

If STERIS supervision is desired for installing and starting up this equipment, contact your local STERIS representative.

Indications for Use

Harmony Nexus Equipment Management System (EMS) is inteded for use in hospital facilities where there is a need for ready access to medical gases, electrical power and audio/visual data services. The EMS organizes surgical equipment such as endoscopy equipment, laparoscopic equipment, cautery devices, insufflators, etc. Harmony Nexus EMS units help hospitals to improve efficiency and safety, and to maximize total room workflow by ergonomically centralizing all surgical support equipment:

- As individual unit or in combination with the ceiling supply units of the Harmony Nexus Equipment Management System
- For communicating and exchanging data, e.g., telephone, nurse's call button or computer networking
- For the ergonomic positioning of medical equipment during use
- For supplying medical equipment with electrical power and medical gases
- To provide additional instrument trays, shelves and supports

The intended user for this equipment includes OR, ER/Trauma Room, Ambulatory Surgery Center and ICU staff.

Advisory

A listing of the safety precautions to be observed when installing and testing this equipment can be found in *SECTION 1, SAFETY PRECAUTIONS* of these instructions. Do not begin installing this equipment until you have become familiar with this information.

IMPORTANT: Be sure to check the Occupational Health and Safety Act, as well as local electric and plumbing codes, for any special requirements that may pertain to installation of this unit.

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Environmental Conditions

Transport and Storage

NOTE: *The following storage conditions apply for up to 15 weeks.*

- Temperature: 13 to 158°F (–11 to +70°C)
- Relative Humidity: 10 to 75%
- Barometric Pressure: 0.5 to 1.05 atm STD atmospheric pressure (500 to 1060 hPa)
- Store only in closed or covered spaces. After 15 weeks, the values for the Operational Location Requirements (below) apply.

Operational Location Requirements

- The equipment is not suitable for operation in areas where there is an explosion hazard.
- The Harmony Nexus Equipment Management System is not suitable for use in the presence of a flammable anesthetic mixture with air or with oxygen or nitrous oxide.
- The ambient temperature during operation must be kept between 50 and 104°F (10 and 40°C)
- Relative humidity should stay within a range of 30 to 75%.
- Atmospheric pressure should stay within a range of 0.7 to 1.05 atm STD atmospheric pressure (700 to 1060 hPa).

STERIS Corporation
2720 Gunter Park East
Montgomery, AL 36109 • USA

Class 1 Equipment

Type B Equipment

Ordinary Equipment (enclosed equipment without protection of ingress of water)

Equipment not suitable for use in the presence of a flammable anesthetic mixture with air or oxygen or nitrous oxide.

Suitable for continuous operation.

Canada Only:

Nonflammable medical gas pipeline systems shall comply with CSA Z7396-1.

Electrical installations in healthcare facilities shall comply with CSA C22.1 and CAN/CSA-Z32.

Anesthetic gas scavenging systems shall comply with CSA Z7396.2.

STERIS Corporation, Montgomery, Alabama is an ISO 13485 certified facility.

The base language of this document is ENGLISH. Any translations must be made from the base language document.

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SAFETY PRECAUTIONS

1

The following *Safety Precautions* must be observed when operating or servicing the Harmony Nexus™ Equipment Management System. WARNING indicates the potential for personal injury and CAUTION indicates the potential for damage to equipment. For emphasis, certain *Safety Precautions* are repeated throughout the manual. It is important to review ALL *Safety Precautions* before operating or servicing the unit.

Strictly following these *Safety Precautions* enhances the Customer's ability to safely and effectively utilize the unit and helps avoid improper maintenance methods which may damage the unit or render it unsafe. It is important to understand that these *Safety Precautions* are not exhaustive; Customers are encouraged to develop their own safety policies and procedures to enhance and complement these *Safety Precautions.*

WARNING – EXPLOSION HAZARD:

⚠ The ceiling mount system must not be installed where flammable gases or anesthesia are or will be used. This equipment is not designed for use in a hazardous location as defined in National Fire Protection Association (NFPA) Flammable Anesthetics Code.

WARNING – PERSONAL INJURY HAZARD:

⚠ After shipping frame and skid have been dismantled, unit can rotate freely. Do not lean against and/or use mounted unit for support.

⚠ Ensure ceiling gas supply lines are depressurized before removing protective caps.

⚠ Connecting electrical equipment to the multiple socket outlet (MSO) effectively leads to creating a medical electrical (ME) system, and the result can be a reduced level of safety.

WARNING – ELECTRIC SHOCK AND BURN HAZARD:

⚠ Disconnect all utilities to the unit before installation. Do not install unless all utilities have been properly locked out. Always follow OSHA lockout-tagout and electrical safety related work practice standards.

⚠ To avoid the risk of electric shock, this equipment must only be connected to a supply mains protective earth.

WARNING – PERSONAL INJURY AND/OR EQUIPMENT DAMAGE HAZARD:

⚠ Repairs and adjustments to this equipment should be made only by fully qualified service personnel. Maintenance performed by inexperienced, unqualified personnel or installation of unauthorized parts could cause personal injury, invalidate the warranty or result in costly damage. Contact STERIS Service Engineering representative regarding service options.

WARNING – PERSONAL INJURY AND/OR EQUIPMENT DAMAGE HAZARD (CONT'D):

- Always lift the assembly of the Equipment Management System (EMS) where indicated by the "Lift Here" label applied to the packaging. Failure to lift the assembly where indicated could cause the unit to fall from the forks, causing equipment damage or personal injury.
- Verify air source supplying air to the pneumatic brake system. Lockout/tagout the air source for the particular EMS unit before servicing.
- Do not exceed maximum shelf load. Refer to **Table 7-1.**
- The unit and shipping materials weigh approximately 1,000 lb (454 kg). To ensure safety, adequately rated equipment must be used to move or lift unit.
- Two people are required to install the shelf.

CAUTION – POSSIBLE EQUIPMENT DAMAGE:

- Do not remove arm support shipping brackets or shipping frame from skid. Set up of supply column must be conducted with protective packaging intact.
- Carefully rotate support head when adjusting rotational stops. Rotating the support head completely around (360°) will twist and kink gas lines and electrical wires located inside the column.
- Care should be taken not to damage bolts when lifting main unit.
- Be careful not to drop any hardware into the mouth of the distance tube.
- Never set up supply column without the packaging protection.

The following symbols may appear on the Harmony Nexus Equipment Management System and packaging:

Table 1-1. Definition of Symbols

Symbol	Definition
	Protective Earth (Ground)
or	Attention, consult manual for further instructions
	Serial Number of Unit
	Equipment or Reorder Number
	Symbol indicating the legal manufacturer name and address
	Symbol indicating the date of manufacture (yyyy/mm)
	Keep dry
	Fragile, handle with care
	Do not stack
	Symbol indicating high voltage

Table 1-1. Definition of Symbols (Continued)

Symbol	Definition
V~	Voltage Rating of Unit, Alternating Current
A	Amperage Rating of Unit
Hz	Frequency Rating of Unit

INSTALLATION CHECKLIST

2

2.1 Tools Required

- Lifting device (e.g., Genie® Lift™[1]) with minimum 600 lb (272 kg) capacity. If Equipment Management System (EMS) unit is greater than 600 lb (272 kg), then two lifting devices are required.
  - P764331-622, Lift, Material Genie, 350 lb (159 kg)
  - P764331-944, Genie Superlift, 650 lb (295 kg)
- Spirit level or digital level (P764335-021, Digital Level)
- Open-end wrenches 19 mm, 24 mm and 30 mm
- Torque wrench with standard and metric sockets
- Metric Allen wrench set
- Multimeter capable of measuring volts and ohms
- Volumetric Pressure Gauge
- LOCTITE® 242 (R005300-554 bottle, or 129377-290 single use 0.5 mL pouch)[2]
- Leak Detection Fluid
- Screwdrivers

2.2 Hardware Required

The hardware listed below is referenced in these instructions. It is required for proper installation of this equipment, and is provided by STERIS unless otherwise noted.

- ❑ 7/8-9 UNC x 16" long allthread ASTM A354 Grade BD steel alloy (or SAE Grade 8), six required
- ❑ 7/8" flat washer, 24 required
- ❑ 7/8" lock washer, 12 required
- ❑ 7/8-9 UNC nuts, ASTM A354 grade BD (or SAE grade 8) steel alloy, 48 required
- ❑ Structural framework (not provided by STERIS)
- ❑ Structural mounting plate (not provided by STERIS)
- ❑ Two 6.0" (152 mm) dia. access holes required in center of plate
- ❑ Support hangers (not provided by STERIS)
- ❑ 24 x 24" (610 x 610 mm) access panel (not provided by STERIS)

1. *Genie® Lift™ is a registered trademark of Genie Industries, a Terex Company.*
2. *LOCTITE® is a registered trademark of Henkel Corporation.*

VERIFY SUPPORT STRUCTURE

3

WARNING – PERSONAL INJURY AND/OR EQUIPMENT DAMAGE HAZARD: Unit and shipping materials weigh approximately 1000 lb (454 kg). To ensure safety, adequately rated equipment must be used to move or lift unit.

CAUTION – POSSIBLE EQUIPMENT DAMAGE: Care should be taken not to damage bolts when lifting main unit.

Before installing the Harmony Nexus™ Equipment Management System:

1. Verify Customer's ceiling mount meets dimensions as specified in Figure 3-1 and Figure 3-2.
2. Verify that hardware is on site (either in the room where the EMS unit is to be installed or hanging from the structural mounting plate). If hardware cannot be located, contact STERIS.

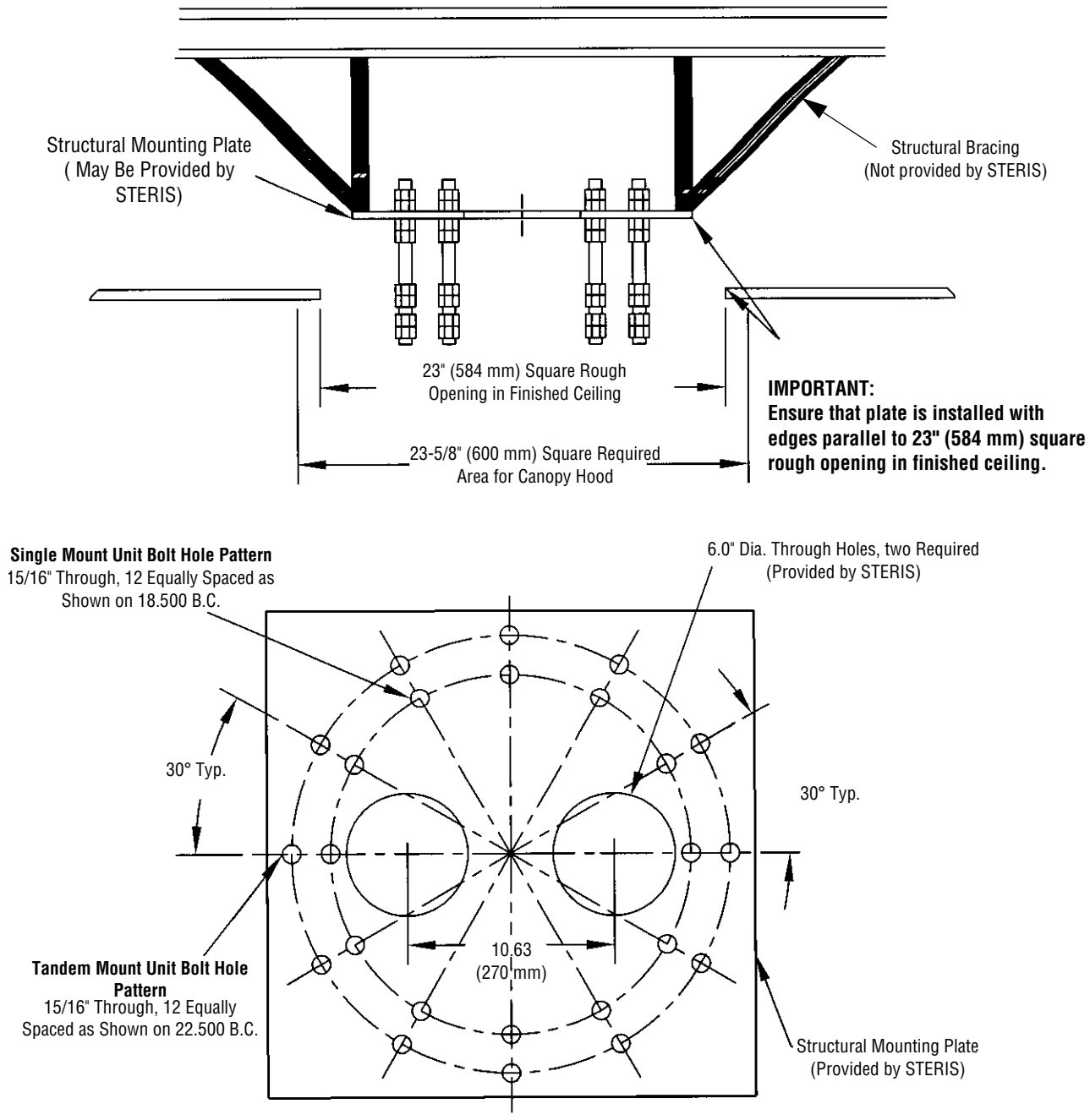


Figure 3-1. Above-Ceiling Support Structure

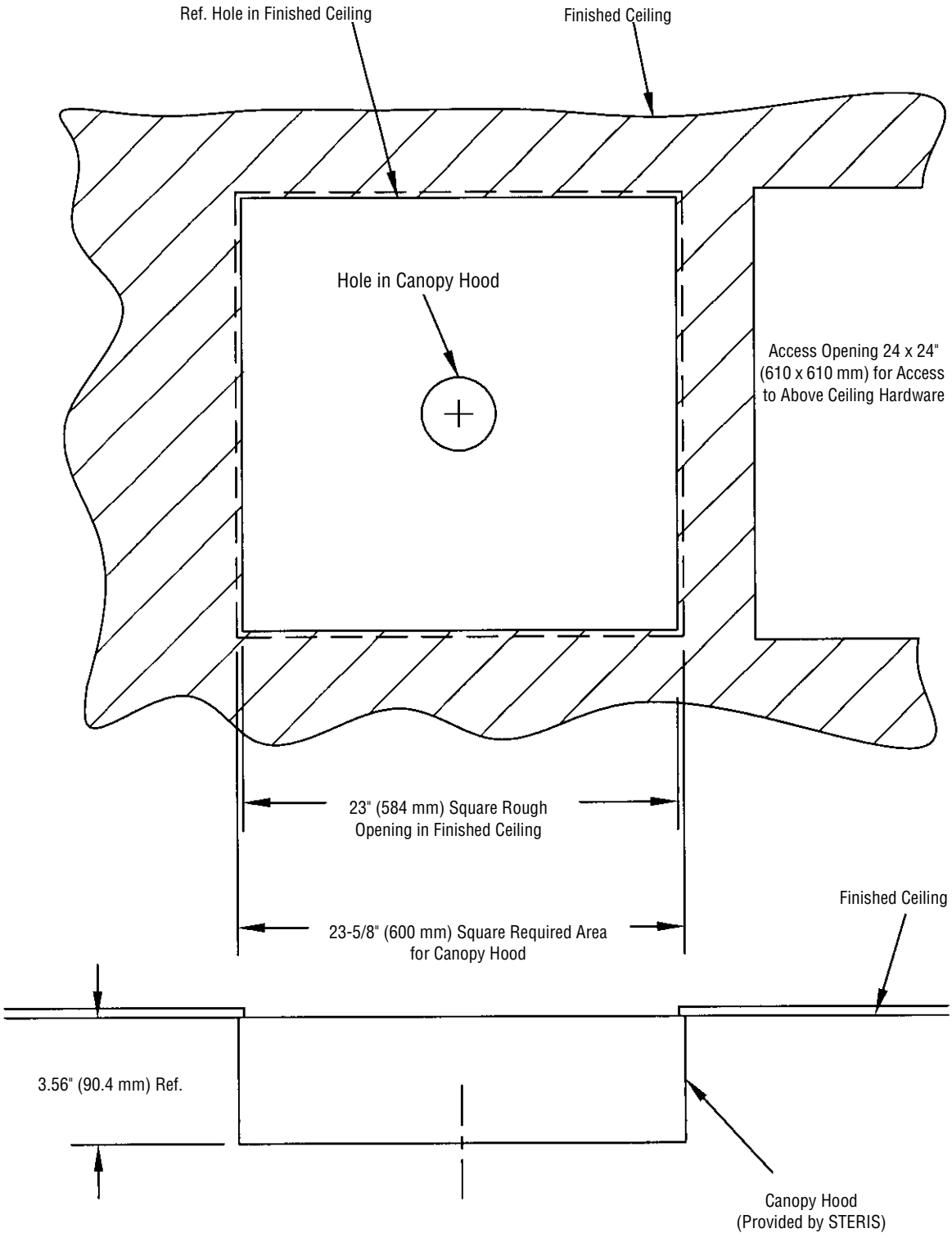
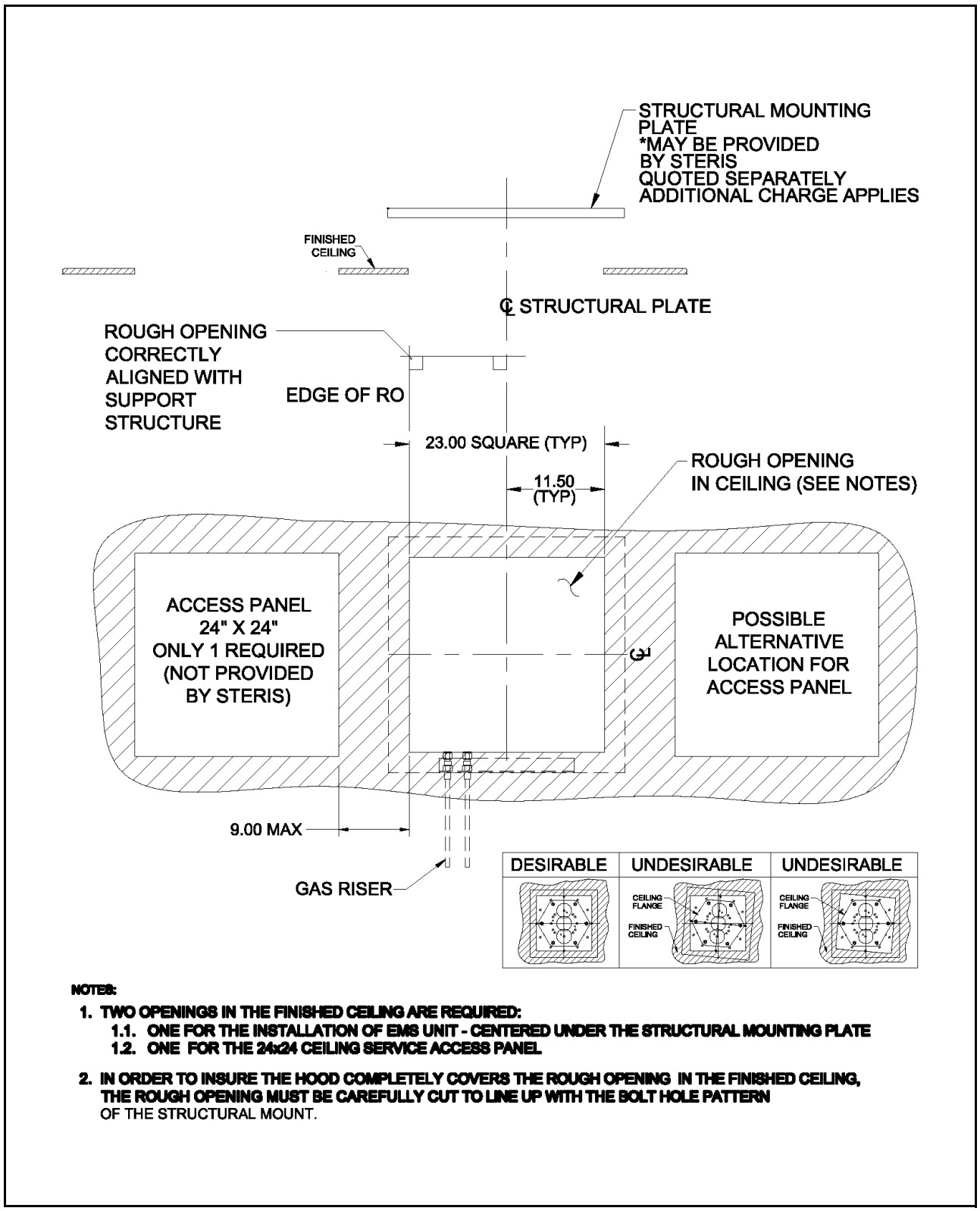


Figure 3-2. Ceiling Opening for Canopy Mount



NOTES:

1. **TWO OPENINGS IN THE FINISHED CEILING ARE REQUIRED:**
   - 1.1. **ONE FOR THE INSTALLATION OF EMS UNIT - CENTERED UNDER THE STRUCTURAL MOUNTING PLATE**
   - 1.2. **ONE FOR THE 24x24 CEILING SERVICE ACCESS PANEL**
2. **IN ORDER TO INSURE THE HOOD COMPLETELY COVERS THE ROUGH OPENING IN THE FINISHED CEILING, THE ROUGH OPENING MUST BE CAREFULLY CUT TO LINE UP WITH THE BOLT HOLE PATTERN** OF THE STRUCTURAL MOUNT.

Figure 3-3. Ceiling Access Requirements

OVERVIEW OF MOUNTING METHOD

4

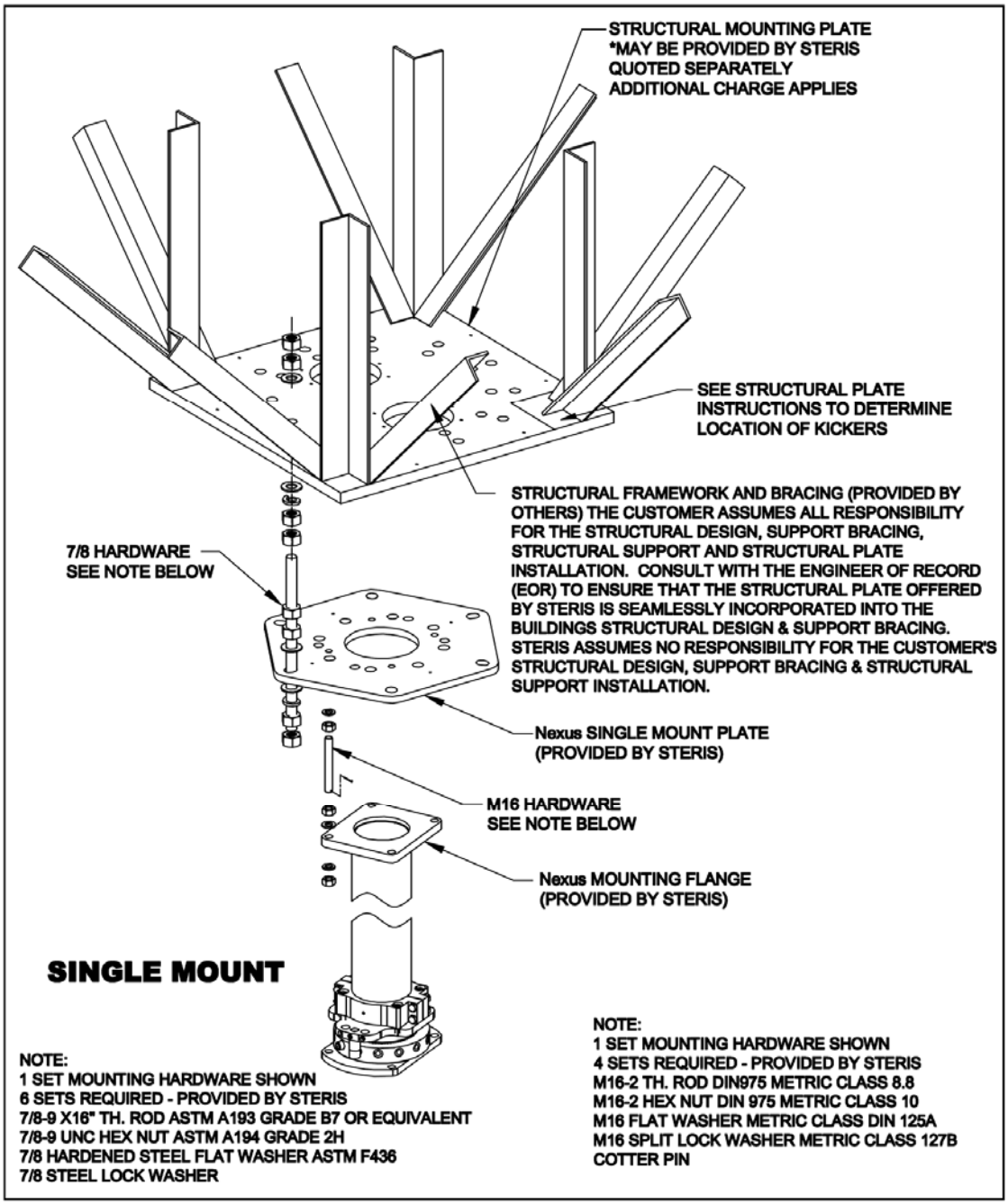

STRUCTURAL MOUNTING PLATE
*MAY BE PROVIDED BY STERIS
QUOTED SEPARATELY
ADDITIONAL CHARGE APPLIES
SEE STRUCTURAL PLATE
INSTRUCTIONS TO DETERMINE
LOCATION OF KICKERS
STRUCTURAL FRAMEWORK AND BRACING (PROVIDED BY OTHERS) THE CUSTOMER ASSUMES ALL RESPONSIBILITY FOR THE STRUCTURAL DESIGN, SUPPORT BRACING, STRUCTURAL SUPPORT AND STRUCTURAL PLATE INSTALLATION. CONSULT WITH THE ENGINEER OF RECORD (EOR) TO ENSURE THAT THE STRUCTURAL PLATE OFFERED BY STERIS IS SEAMLESSLY INCORPORATED INTO THE BUILDINGS STRUCTURAL DESIGN & SUPPORT BRACING. STERIS ASSUMES NO RESPONSIBILITY FOR THE CUSTOMER'S STRUCTURAL DESIGN, SUPPORT BRACING & STRUCTURAL SUPPORT INSTALLATION.
7/8 HARDWARE
SEE NOTE BELOW
Nexus SINGLE MOUNT PLATE
(PROVIDED BY STERIS)
M16 HARDWARE
SEE NOTE BELOW
Nexus MOUNTING FLANGE
(PROVIDED BY STERIS)
SINGLE MOUNT
NOTE:
1 SET MOUNTING HARDWARE SHOWN
6 SETS REQUIRED - PROVIDED BY STERIS
7/8-9 X16" TH. ROD ASTM A193 GRADE B7 OR EQUIVALENT
7/8-9 UNC HEX NUT ASTM A194 GRADE 2H
7/8 HARDENED STEEL FLAT WASHER ASTM F436
7/8 STEEL LOCK WASHER
NOTE:
1 SET MOUNTING HARDWARE SHOWN
4 SETS REQUIRED - PROVIDED BY STERIS
M16-2 TH. ROD DIN975 METRIC CLASS 8.8
M16-2 HEX NUT DIN 975 METRIC CLASS 10
M16 FLAT WASHER METRIC CLASS DIN 125A
M16 SPLIT LOCK WASHER METRIC CLASS 127B
COTTER PIN

Figure 4-1. Overview of Mounting Details

IDENTIFYING MOUNTING PLATE TYPE & CANOPY TYPE

5

5.1 Mounting Plate Type

Single mount plate (see Figure 5-1).

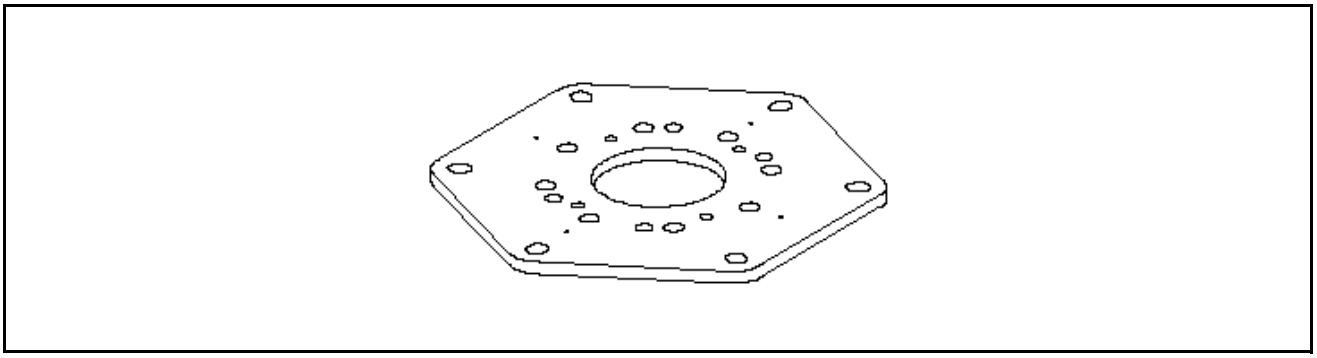


Figure 5-1. Mounting Plate Types

5.2 Canopy Types

There are two types of canopies

a. Canopy Hood – for a single mount unit

b. Flush Mount – for a single mount unit

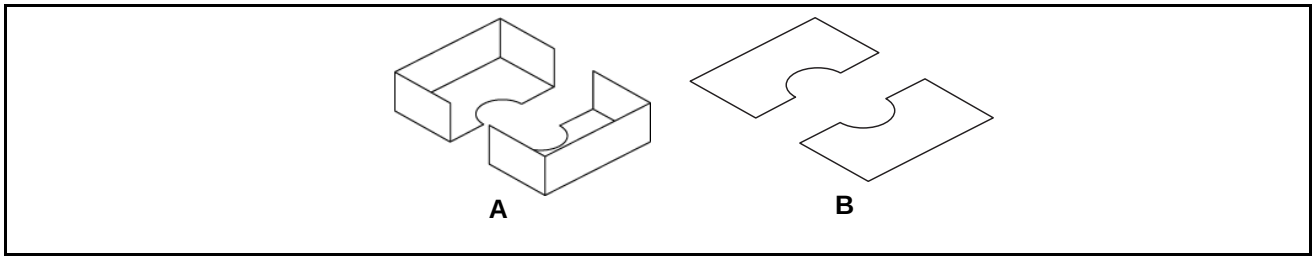


Figure 5-2a. Canopy Types

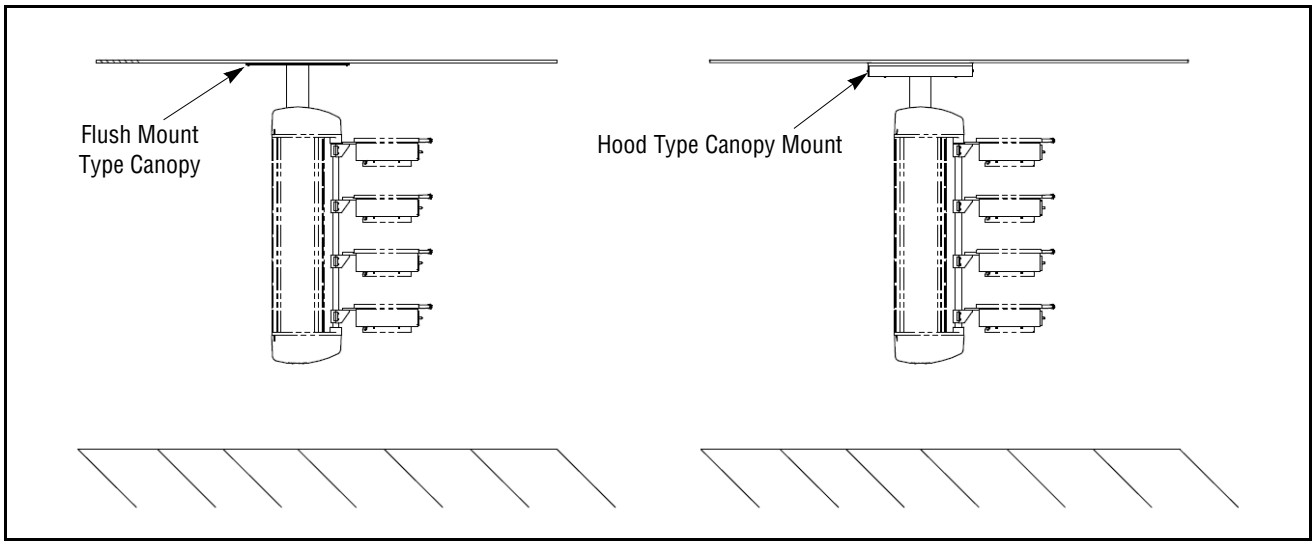
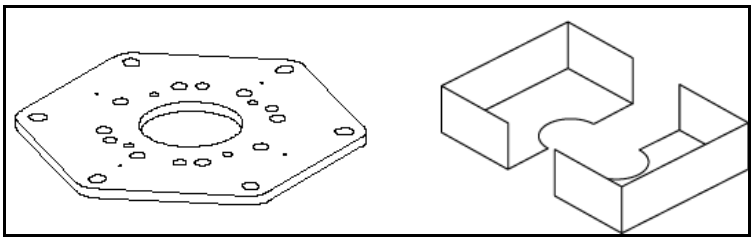


Figure 5-2b. Typical Mounting Configurations

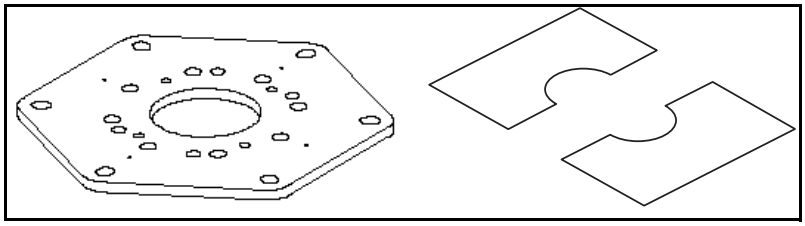
5.3 Overview of Mounting Configurations

Harmony Nexus EMS mounting configurations are made up from various combinations of the two types of mounting plates and the two canopy types.

1. Single mount unit
   - Mounting plate
   - Hood type canopy



2. Single mount unit
   - Mounting plate
   - Flush mount type canopy



MOUNTING DETAILS FOR THE VARIOUS CONFIGURATIONS

6

6.1 Gas Riser Mounting

- The Gas Riser Mounting Bracket must be installed on the structural plate by using 1/4-20 UNC screws provided.
- 6" (152 mm) clearance is required above structural mounting plate for gas supply hook-up.

CAUTION – POSSIBLE EQUIPMENT DAMAGE: Do not remove arm support shipping brackets or shipping frame from skid. Set up supply column must be conducted with protective packaging intact.

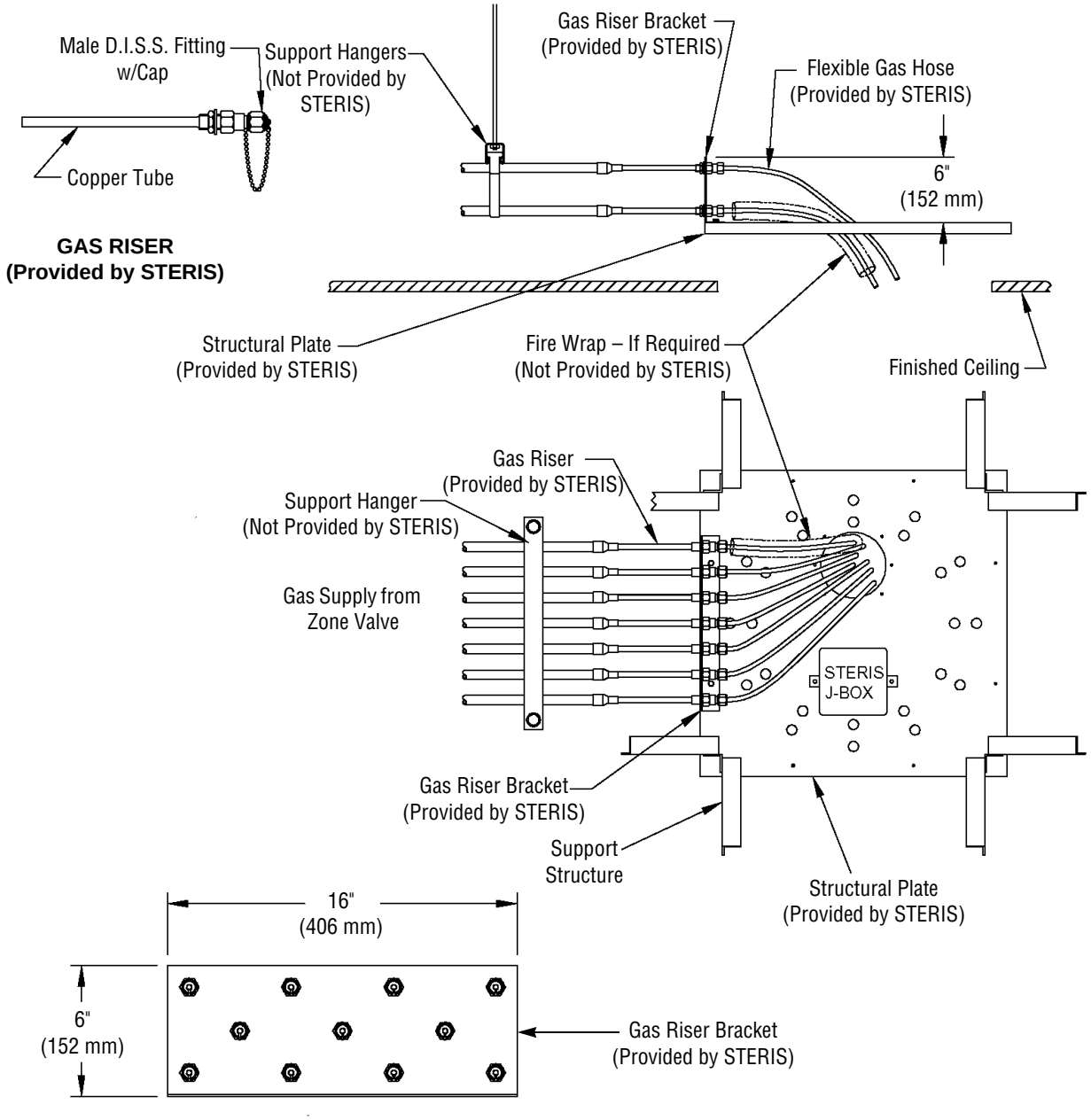

Male D.I.S.S. Fitting w/Cap
Support Hangers (Not Provided by STERIS)
Gas Riser Bracket (Provided by STERIS)
Flexible Gas Hose (Provided by STERIS)
6" (152 mm)
Copper Tube
GAS RISER (Provided by STERIS)
Structural Plate (Provided by STERIS)
Fire Wrap – If Required (Not Provided by STERIS)
Finished Ceiling
Gas Riser (Provided by STERIS)
Support Hanger (Not Provided by STERIS)
Gas Supply from Zone Valve
STERIS J-BOX
Gas Riser Bracket (Provided by STERIS)
Support Structure
Structural Plate (Provided by STERIS)
16" (406 mm)
6" (152 mm)
Gas Riser Bracket (Provided by STERIS)

Figure 6-1. Gas Riser Detail

Table 6-1. Gas Riser/Dust Cap Part Numbers

Gas Riser Part Number	Gas	Dust Cap Part Number
136812-668	WAGD	150824-808
136812-669	Oxygen	150824-807
136812-670	Vacuum	150824-806
136812-671	Med Air	150824-806
136812-672	Nitrogen	150824-806
136812-673	Carbon Dioxide	150824-806
136812-674	Nitrous Oxide	150824-806

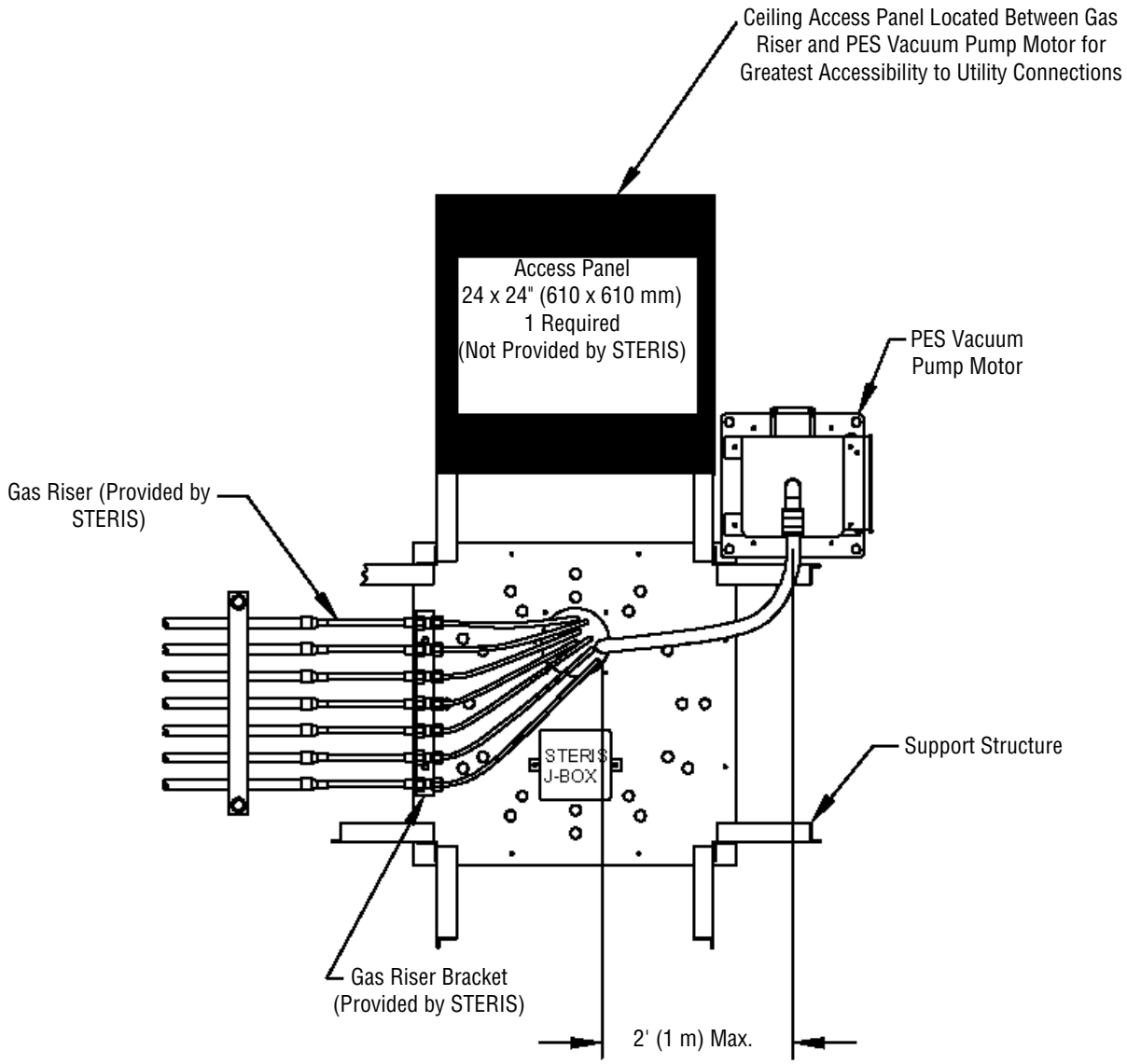
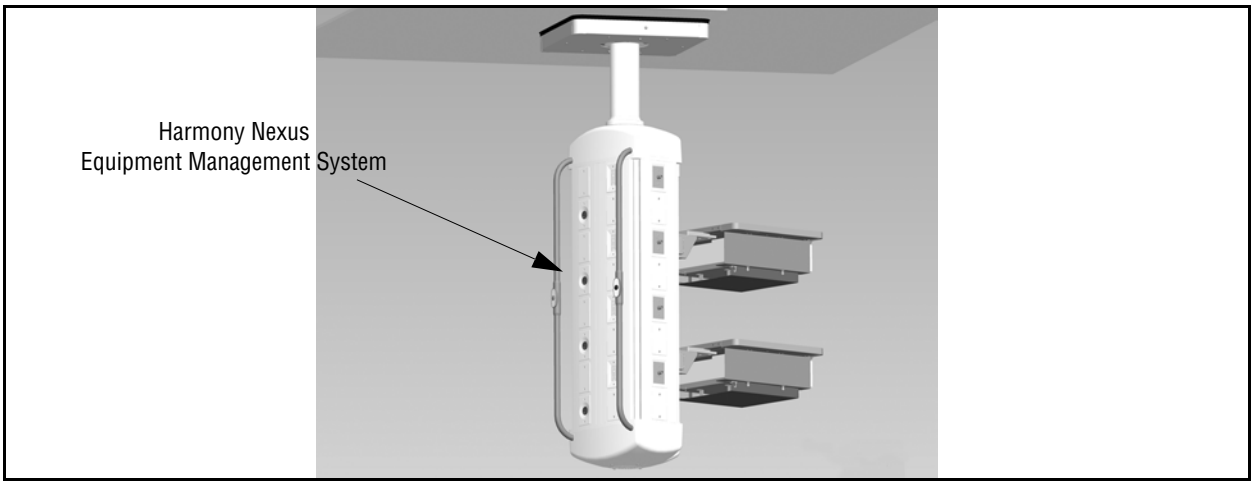

Ceiling Access Panel Located Between Gas Riser and PES Vacuum Pump Motor for Greatest Accessibility to Utility Connections
Access Panel
24 x 24" (610 x 610 mm)
1 Required
(Not Provided by STERIS)
PES Vacuum Pump Motor
Gas Riser (Provided by STERIS)
STERIS J-BOX
Support Structure
Gas Riser Bracket (Provided by STERIS)
2' (1 m) Max.

Figure 6-2. Plan View from Ceiling

INSTALLATION

7



Personnel Required: (Two)

Personal Protective Equipment Required:

- Safety Goggles or Safety Glasses
- Gloves • Steel-Toe Shoes • Hard Hat

Special Tools:

- Lifting device (e.g., Genie® Lift™[1]) with minimum 600 lb (272 kg) capacity. If Equipment Management System (EMS) unit is greater than 600 lb (272 kg), then two lifting devices are required.
  - P764331-622, Lift, Material Genie, 350 lb (159 kg) capacity
  - P764331-944, Genie Superlift, 650 lb (259 kg) capacity
- Spirit level or digital level (P764335-021, Digital Level)
- Open-end wrenches 19 mm, 24 mm and 30 mm
- Torque wrench with standard and metric sockets
- Metric Allen wrench set
- Multimeter capable of measuring volts and ohms
- Volumetric Pressure Gauge
- LOCTITE® 242 (R005300-554 bottle, or 129377-290 single use 0.5 mL pouch)[2]
- Leak Detection Fluid
- Screwdrivers

1. *Genie® Lift™ is a registered trademark of Genie Industries, a Terex Company.*
2. *LOCTITE® is a registered trademark of Henkel Corporation.*

7.1 Install Harmony Nexus Equipment Management System

STEP
1

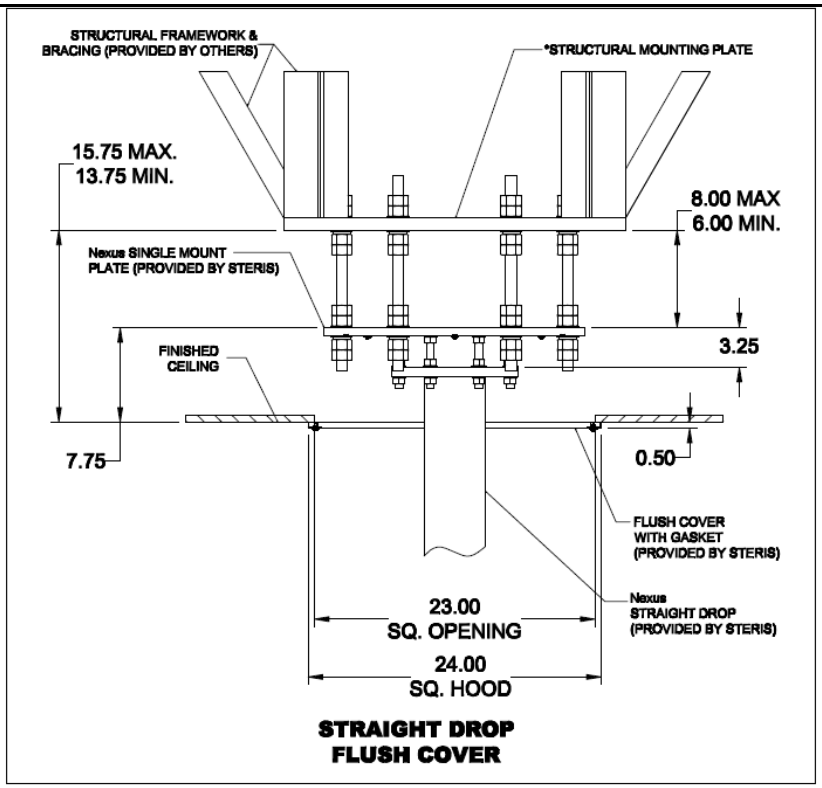
Step 1: Remove separate packages, miscellaneous mounting hardward and/or unattached accessories from shipping container.

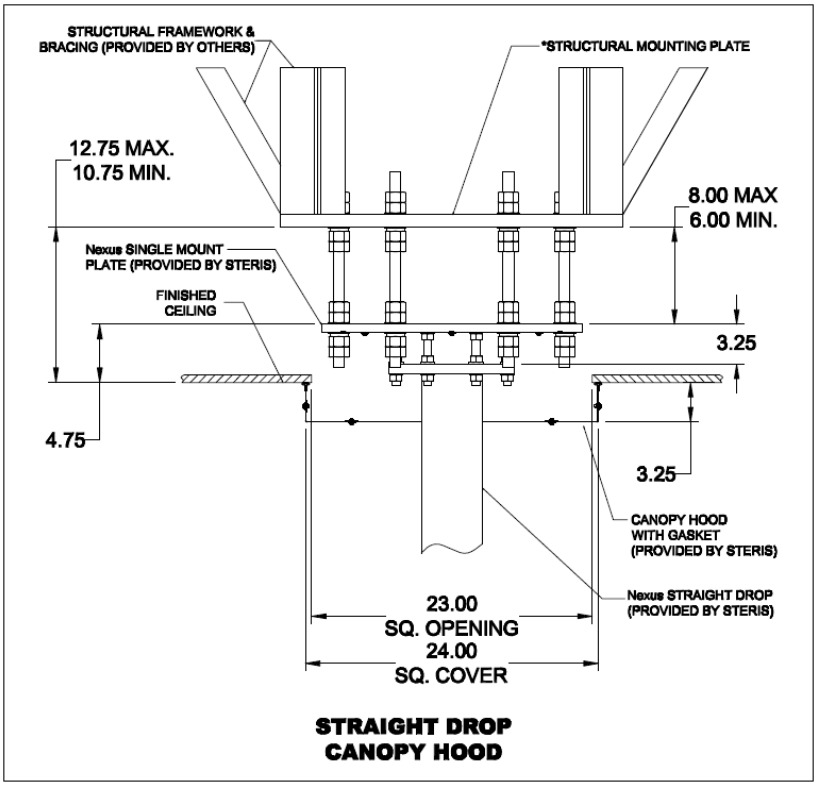
NOTE: *Do not remove brackets/supports that hold the unit to the skid.*

NOTE: *Verify all audio/visual cabling is present per sales order.*

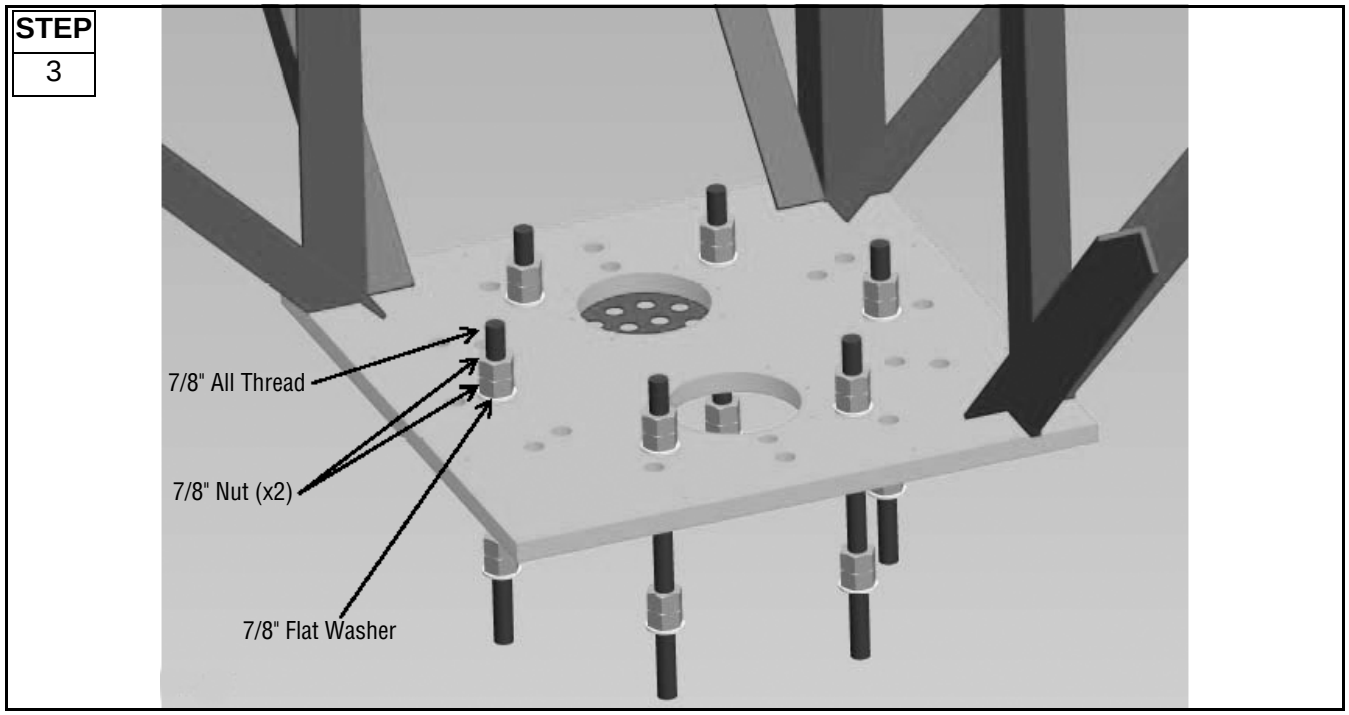
STEP 2

NOTE: Dimensions are in inches.

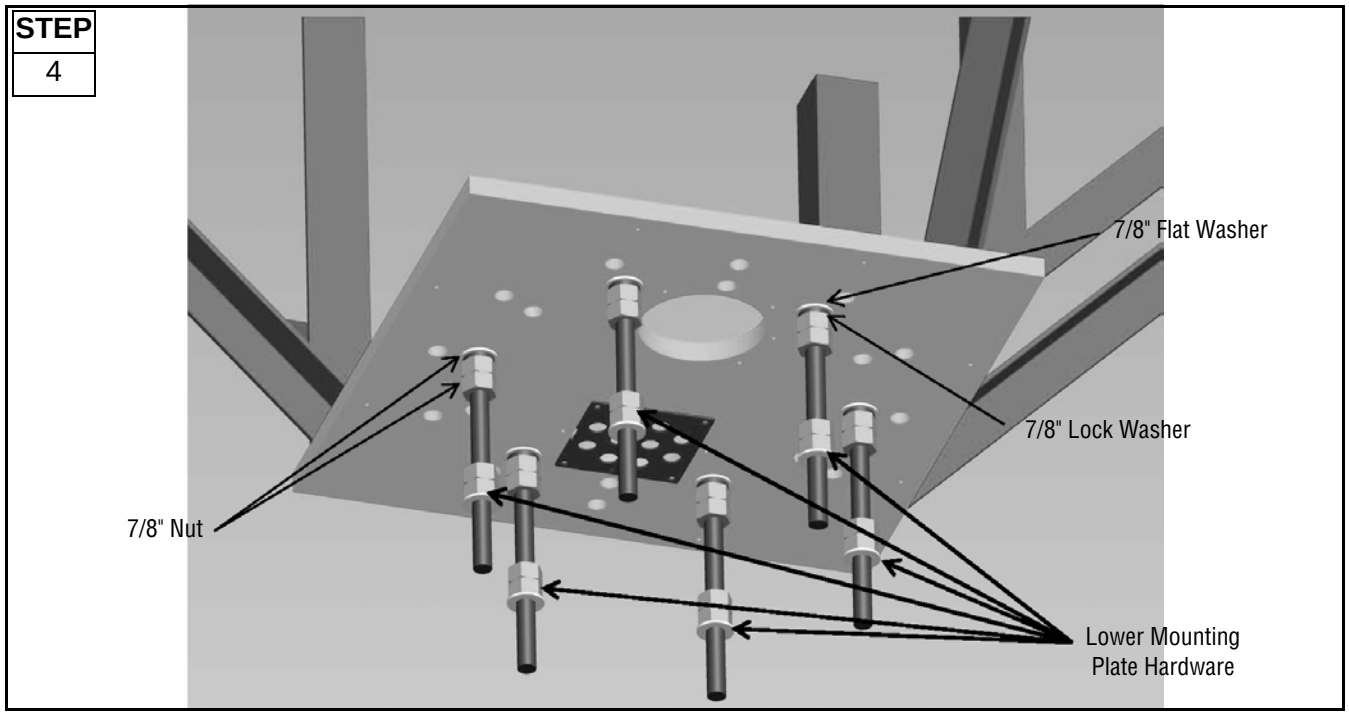




Step 2: Install intermediate plate and canopy mounting plate to support structure.



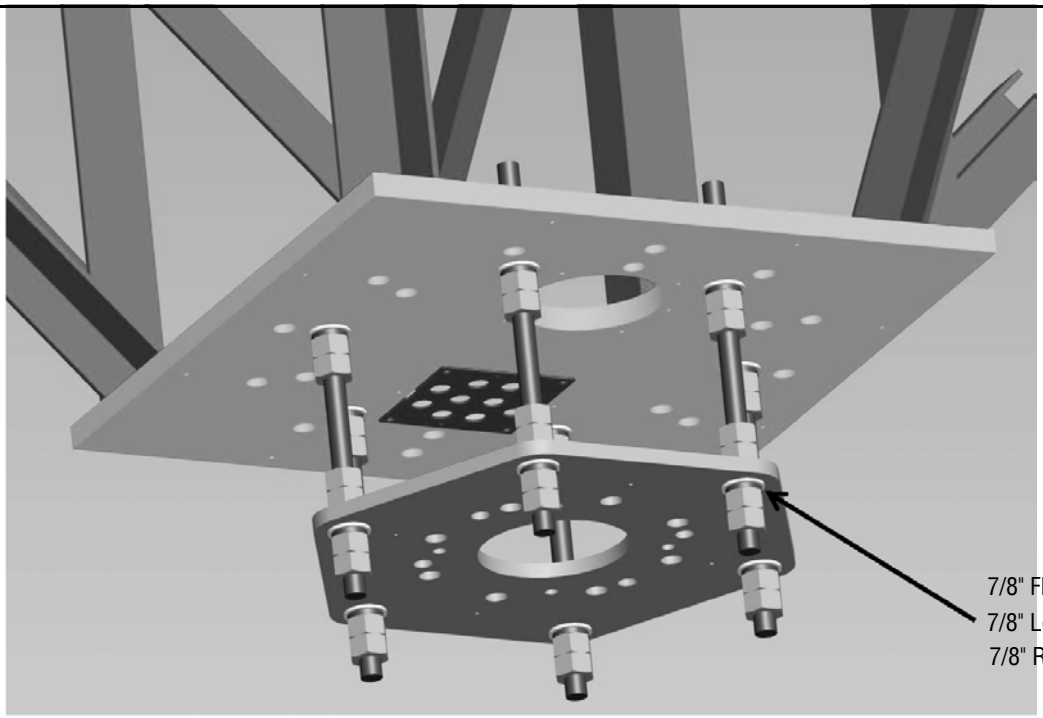
Step 3: Install All Thread, 7/8" nuts and 7/8" washers around the structure plate.

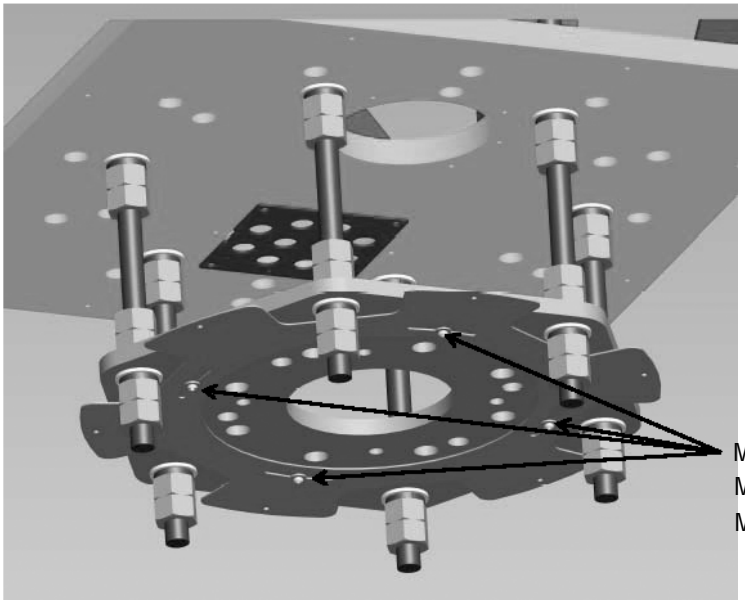


Step 4: Install All Thread, 7/8" nuts, 7/8" flat washers and 7/8" lock washers surrounding the bottom of structure plate.

- Install lower 7/8" nuts and 7/8" flat washers such that the top of mount plate is 6-8" (152-203 mm) below bottom of structure plate.

STEP
5



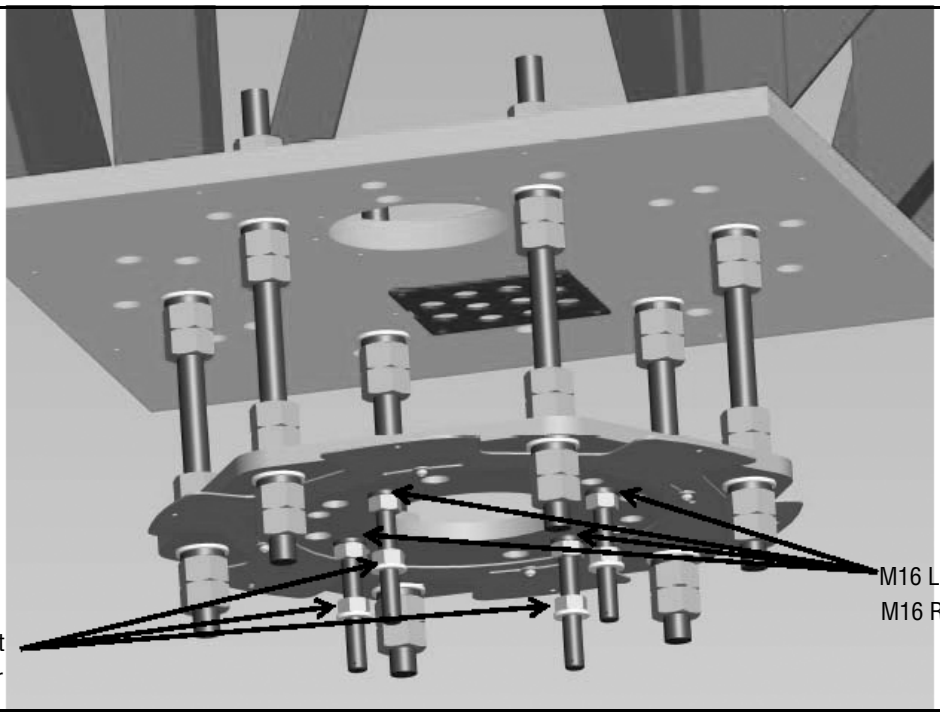


NOTE: *Slots in canopy mounting plate are arc shaped to allow for canopy alignment with ceiling opening.*

Step 5: Raise mount plate up to the lower mounting hardware.

- Install 7/8" nuts, flat washers and lock washers on bottom of mount plate.
- Level mount plate using three or four nuts.
- When mounting plate is level, tighten remaining nuts.
- Torque all 7/8" hardware to 80 ft•lb (356 N•m).

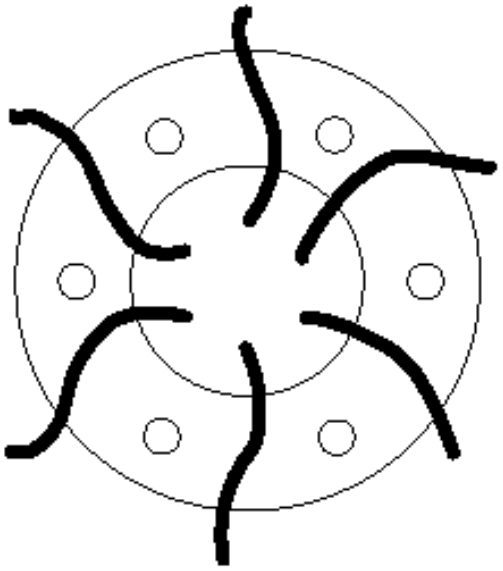
STEP
6



Step 6: Thread M16 All Thread into threaded holes in mounting plate.

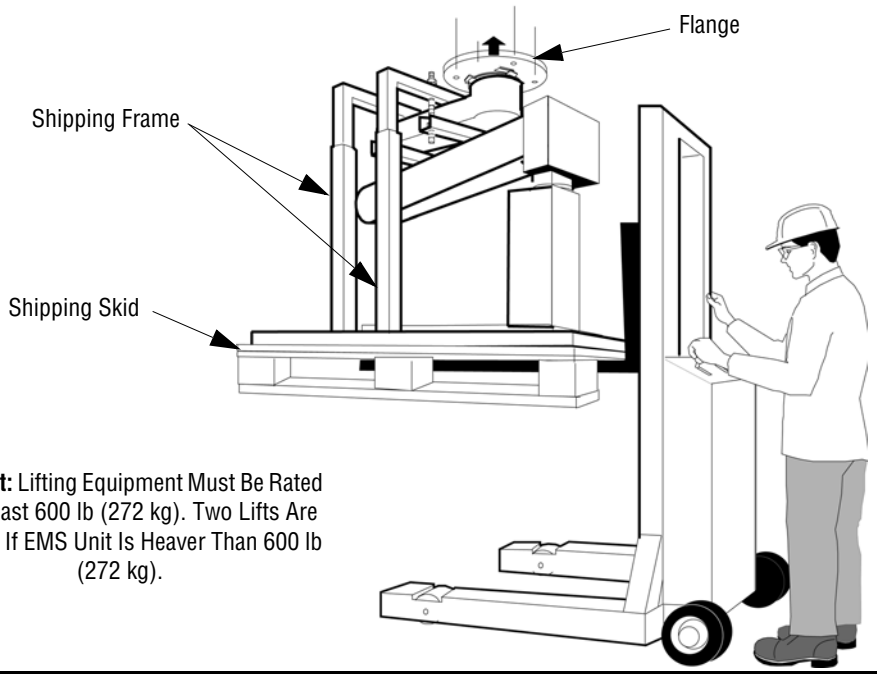
- Install M16 lock washers and M16 regular nuts in order to secure M16 All Thread to mounting plate.
- Install M16 nuts and flat washers such that top of mounting plate is 3.25" (83 mm) from top of drop tube weldment.

STEP
7



Step 7: On unit, arrange hoses and cables so they do not cross one another.

STEP
8

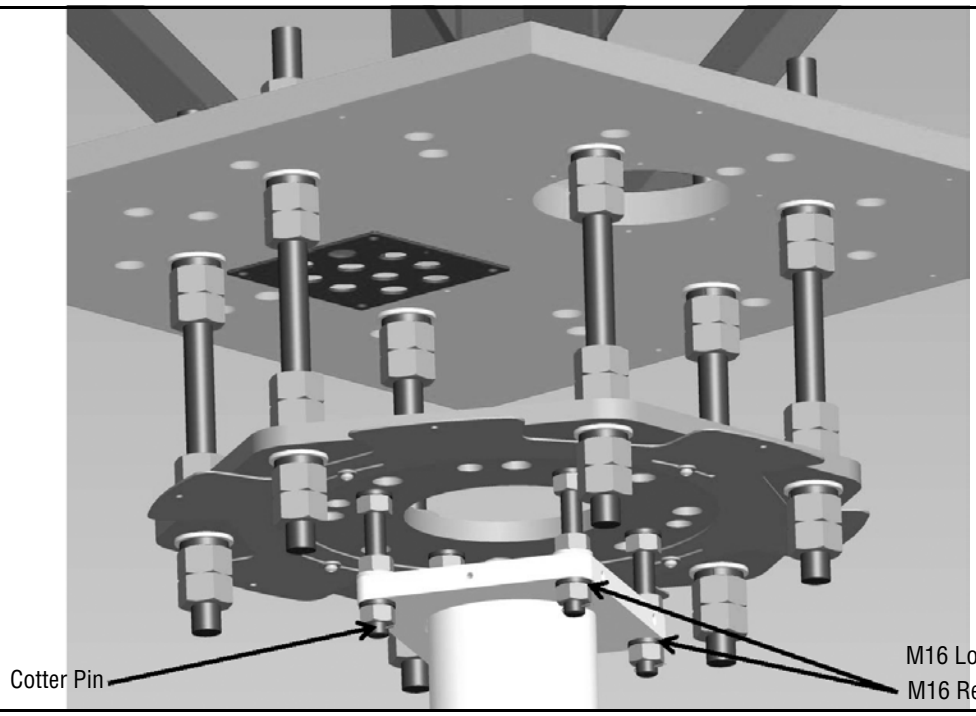


Important: Lifting Equipment Must Be Rated for at Least 600 lb (272 kg). Two Lifts Are Required If EMS Unit Is Heaver Than 600 lb (272 kg).

Step 8: Use lifting device to raise unit, including shipping frame and skid, to a height where all mounting bolts can be aligned with holes in unit upper mount. Align bolts with upper mount, then raise unit.

- Thread cables and hoses through center of ceiling plate.
- Raise unit fully.

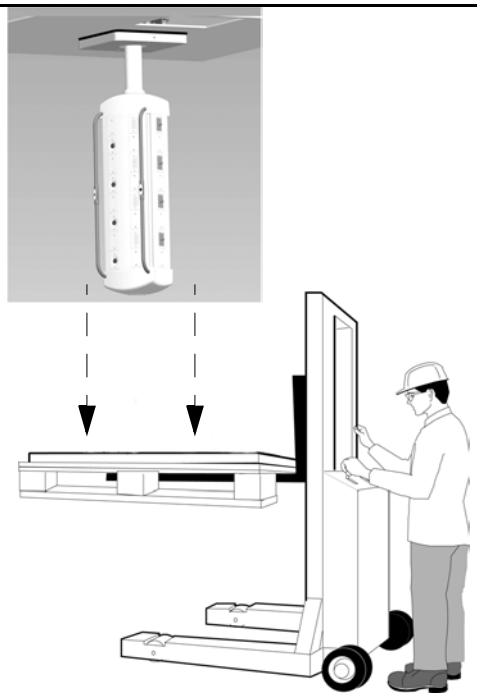
STEP
9



Step 9: Install M16 lock washers and M16 regular nuts in order to secure M16 drop tube weldment.

- Install cotter pins on bottom of All Thread (four places).

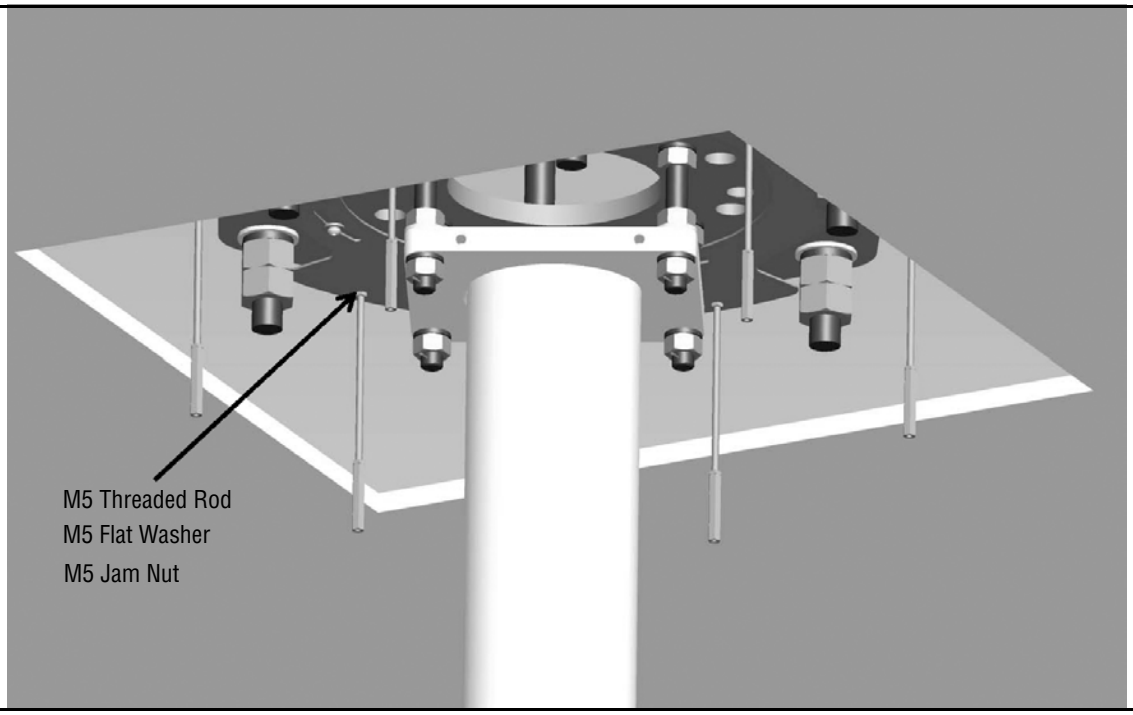
STEP
10



Step 10: Dismantle shipping crate and lower skid.

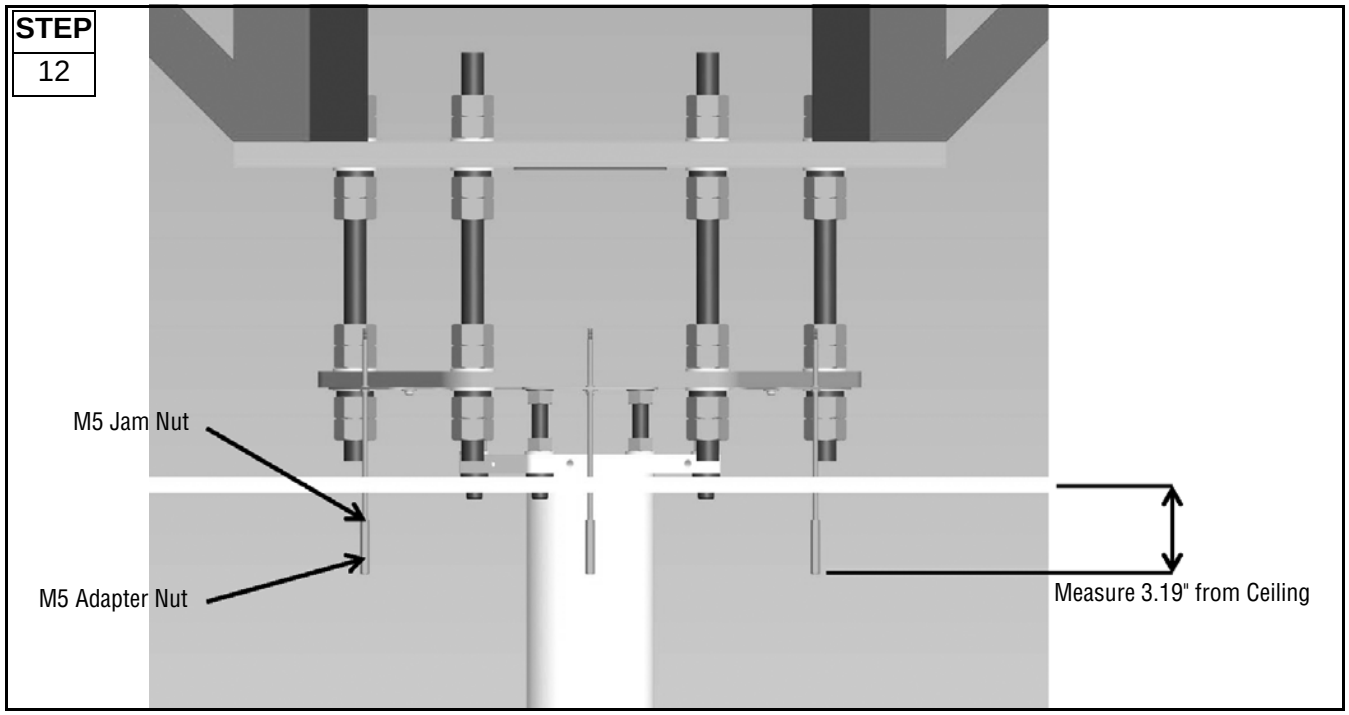
- Verify distance tube flange is secured with lock washers, nuts and cotter pins.
- Level column with nuts surrounding distance tube flange.
- Level drop tube weldment as described in Section 8.
- After leveling procedure, tighten all mounting hardware to 80 ft•lb (356 N•m).

STEP
11



Step 11: Install six M5 threaded rods into canopy mounting plate for canopy cover mounting.

- Install M5 flat washer and jam nut at approximately 1-1/2" (38 mm) from upper end of threaded rod.

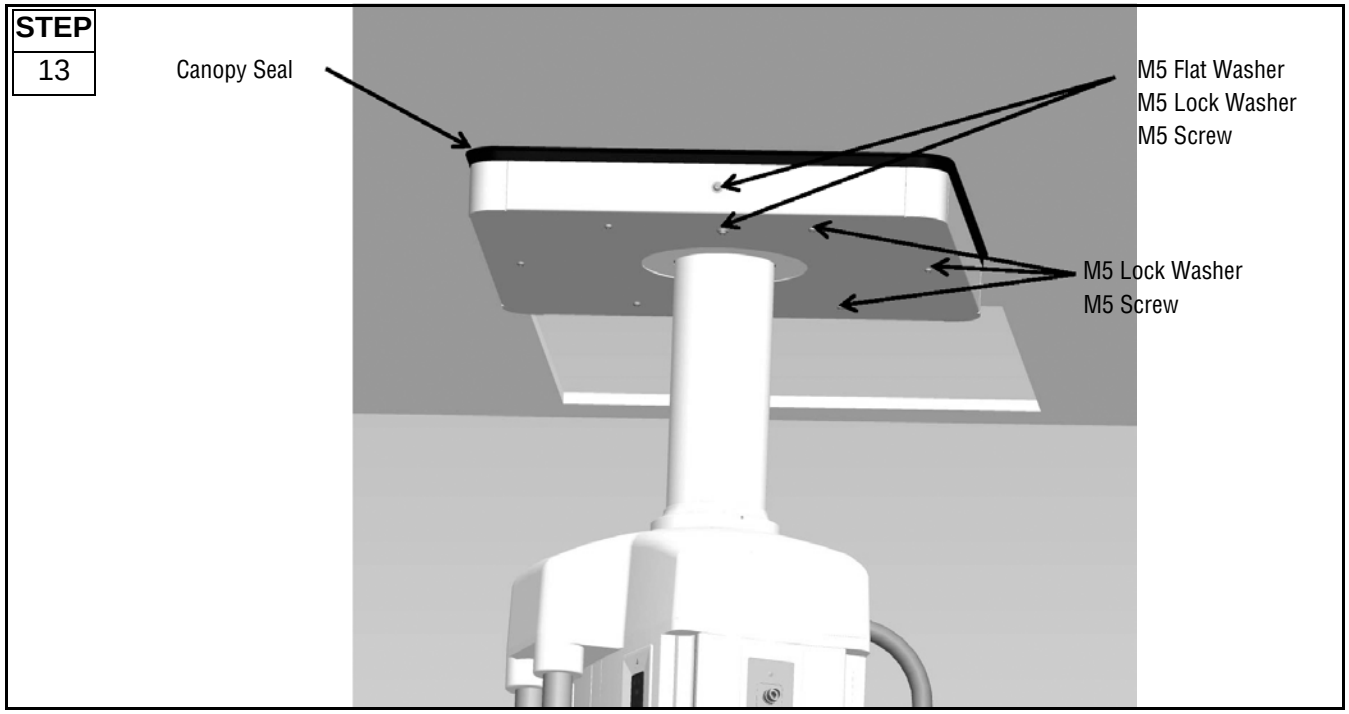


Step 12: Install adapter nuts into threaded rods approximately 1/2" to 5/8".

- Lock adapter nut in place with M5 jam nut.

NOTE: *For hood type canopy, adapter should hang 3.19" below ceiling. For flush mount type canopy, adapter should hang 0.44" below ceiling.*

- After verifying clearance, use upper M5 jam nut to lock threaded rods in position.

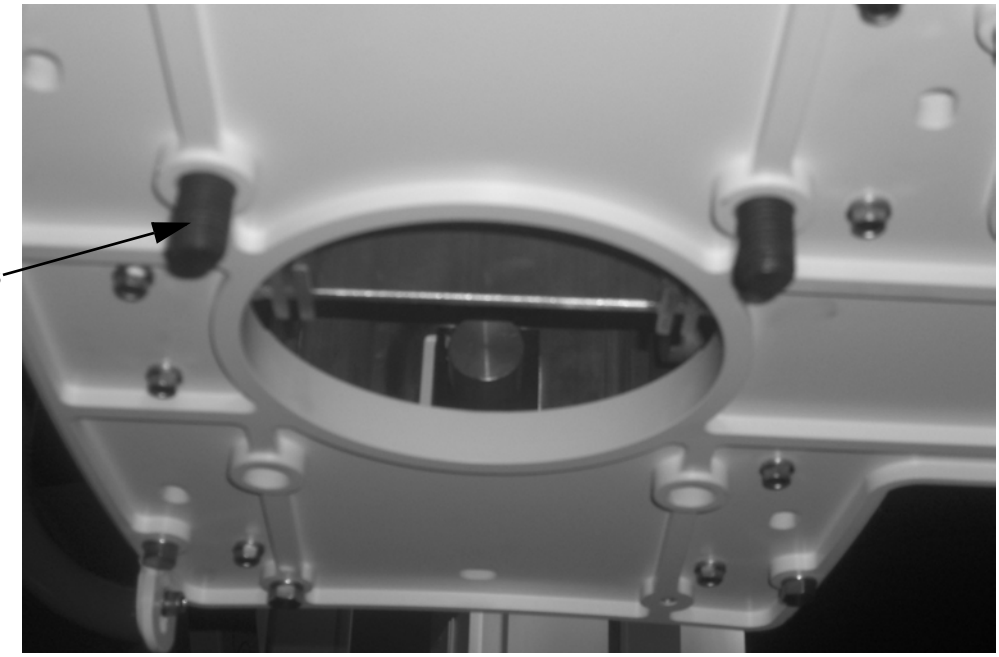


Step 13: Place two halves of canopy hood around bearing and connect them with four sets of M5 hardware (screw, flat washer, lock washer).

- Thread canopy seal onto upper surface of canopy wall.
- Raise canopy hood and insert M5 screws through hood into adapter nuts on M5 threaded rods installed previously.
- Tighten screws.

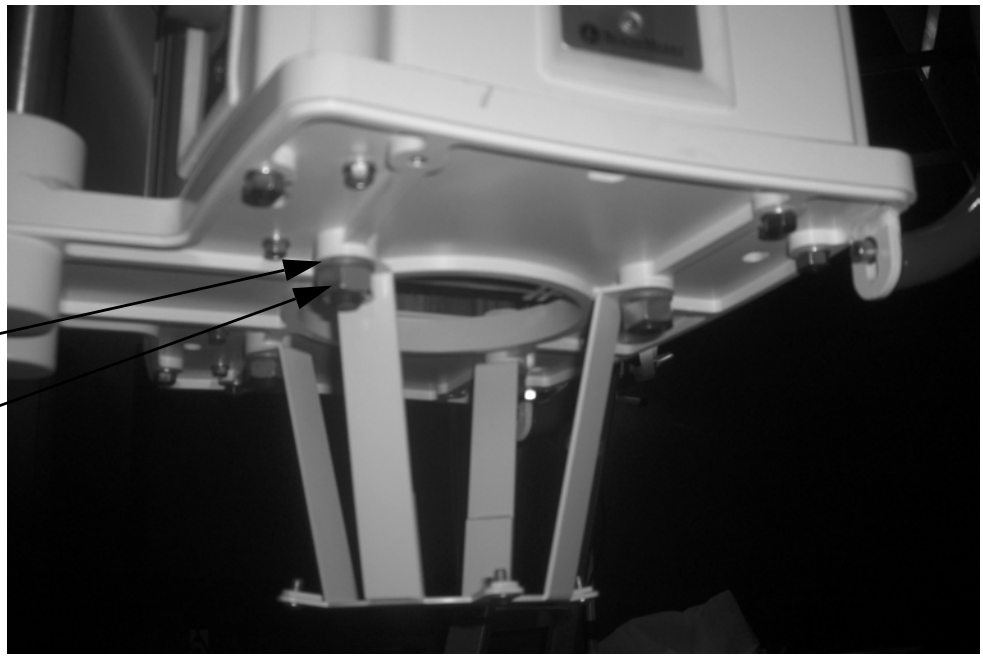
7.2 Install Bottom Column Cover

STEP 1



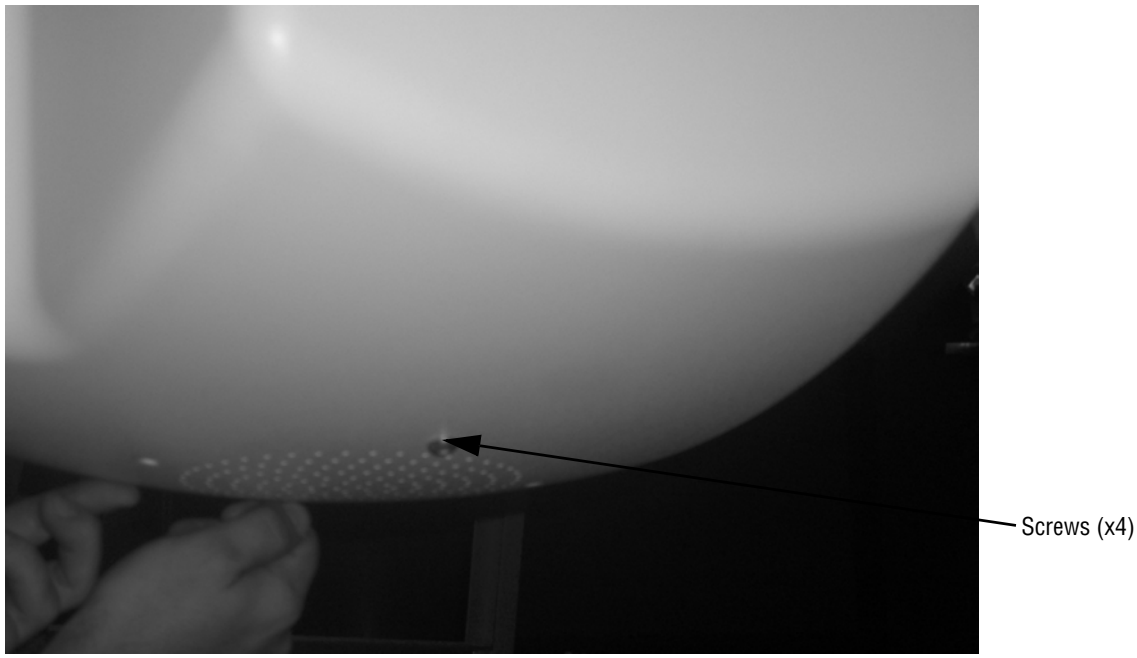
Step 1: Insert two flat rods with threaded rods into column such that threaded rods drop out of column.

STEP 2



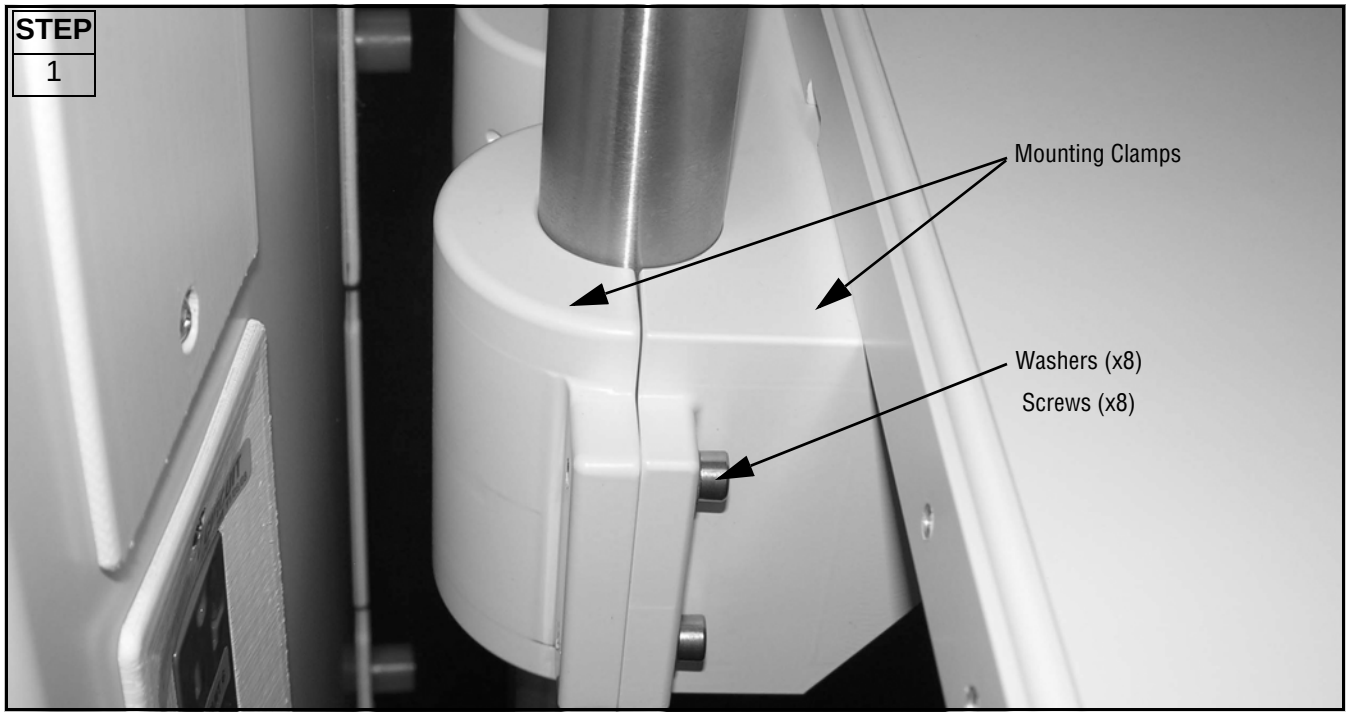
Step 2: Attach bracket with washers and nuts.

STEP
3



Step 3: Place cover onto bottom and secure with four screws.

7.3 Install Shelves



WARNING – PERSONAL INJURY AND/OR EQUIPMENT DAMAGE HAZARD: Two people are required to install the shelf.

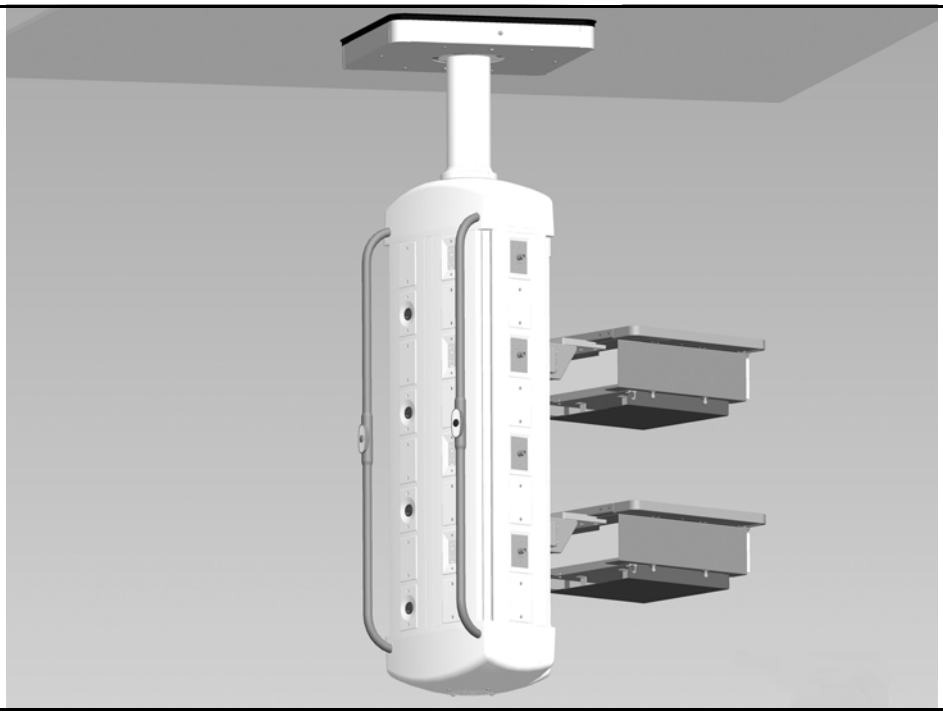
Step 1: Lift shelf to desired height. Use lifting device if necessary.

- Position mounting clamps on opposite side of rails.
- Secure mounting clamps with washers (x8) and screws (x8).

Table 7-1. Column Capacity

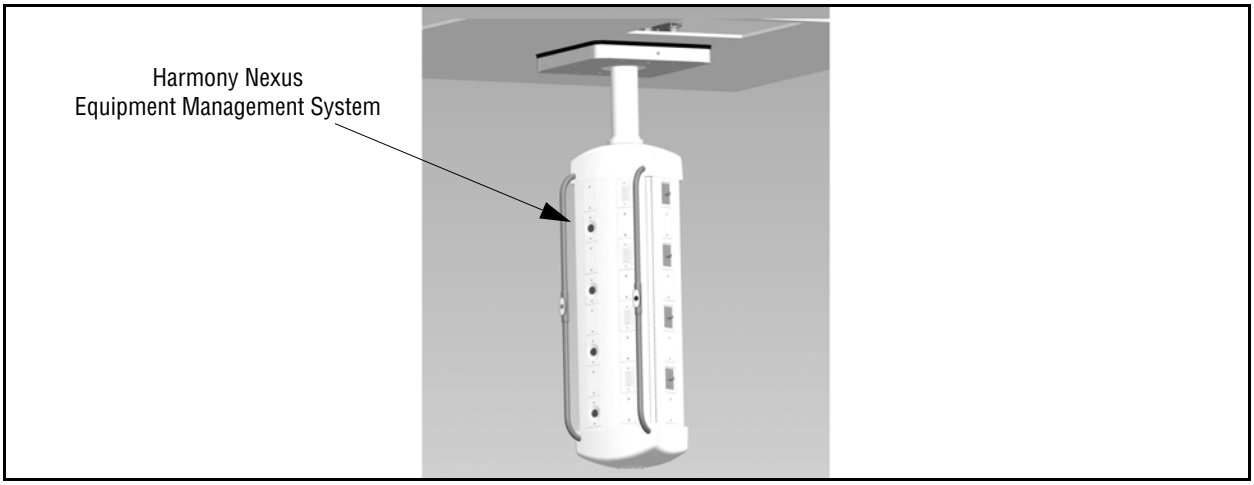
45" (1143 mm), 35" (889 mm) and 25" (635 mm) Length Column Weight Capacity without Accessories	
Number of Shelves	**Average Weight Load Per Shelf**
5	38 lb (17 kg)
4	56 lb (25 kg)
3	85 lb (39 kg)
Do not exceed maximum shelf load of 85 lb (39 kg).	
The maximum loading for column is the average of the loaded weight per shelf times number of shelves. Do not exceed maximum weight of 85 lb (39 kg) on a single shelf. Maximum column load is 350 lb (159 kg) which includes 32 lb (14.5 kg) for each shelf plus weight of equipment.	

STEP
2



Step 2: Installation complete.

8.1 Leveling Checklist



Personnel Required: (Two)

Personal Protective Equipment Required:

- Safety Goggles or Glasses
- Gloves
- Steel-Toe Shoes
- Hard Hat

Parts Required:

- Shelf/Shelves

Special Tools:

- Genie® Lift™[1]
- Ladder (8’ [2 m])
- Spirit Level or Digital Level (P764335-021, Digital Level)
- Weight Scale
- 24 mm wrench

1. Genie® Lift™ is a registered trademark of Genie Industries, a Terex Company.

8.2 Leveling Column

STEP
1

Step 1: Place digital level on column.

- Adjust nuts until column is level.

9.1 Adjust Column/ Support Head Swivel Adjustment

See Figure 9-1.

NOTE: *The swiveling range of the supply column is 320° and can be limited up to 50° (45° increment).*

1. To set swiveling range, loosen two screws in ring above top column cover and lift up to allow access to bearing.

   NOTE: *Perimeter of bearing has 14 M8 threaded holes. A M8 socket head cap setscrew with washer is screwed into one of the holes as a stop.*

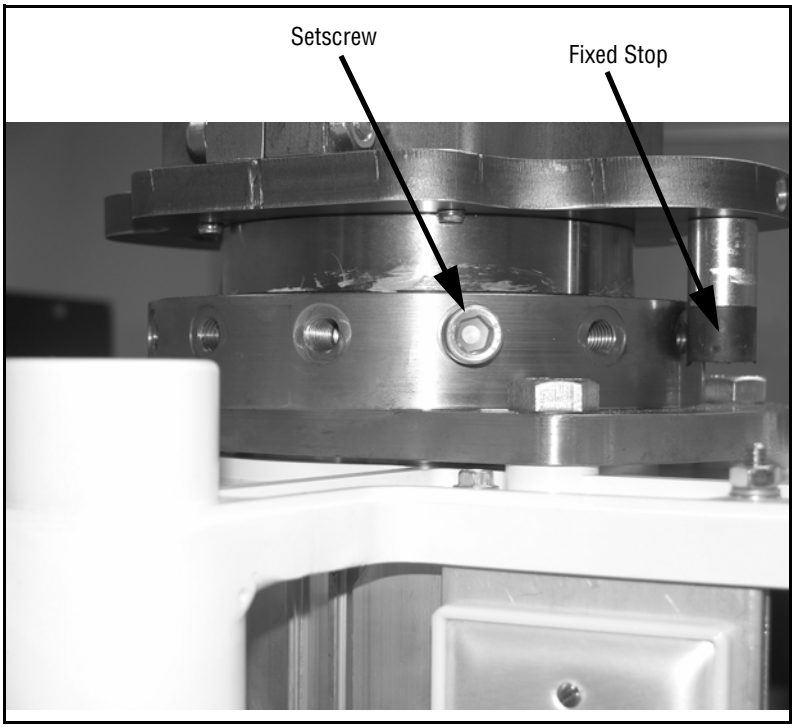


Figure 9-1. Swivel Adjustments

2. To limit swiveling range further, insert an additional screw accordingly or relocate existing second stop screw (supplied with product) to the desired location.
3. Reinsert top column cover onto supply column.

9.2 Adjust Friction Brakes – Column

See Figure 9-2.

Loosen two screws in ring above top column cover and lift up to access brake.

NOTE: *There are setscrews that adjust the friction brake. Adjust middle screw first. If braking is still insufficient, adjust outer setscrews.*

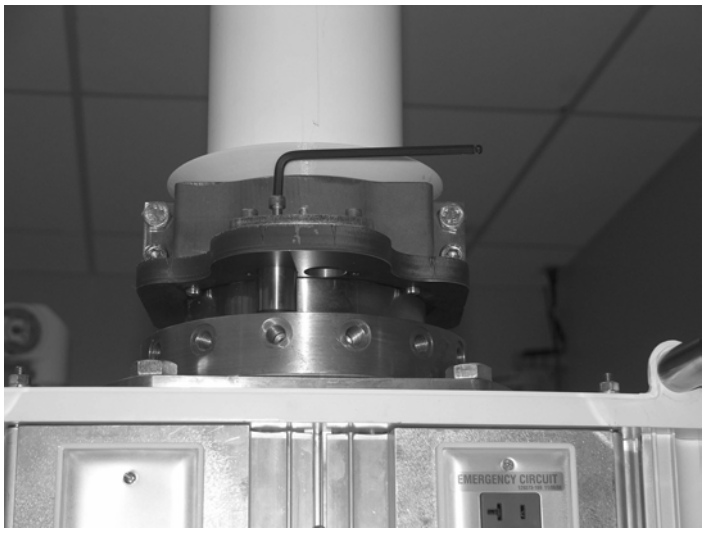


Figure 9-2. Friction Brake Assembly

UTILITY CONNECTIONS

10

10.1 Final Connection of Gas Services

WARNING–PERSONAL INJURY HAZARD: Ensure ceiling gas supply lines are depressurized before removing protective caps.

1. Locate gas lines with Diameter Index Safety System (D.I.S.S.) connectors protruding from the bearing plate of the Harmony Nexus Equipment Management System.
2. Match gas type coding connectors of Harmony Nexus EMS with those projecting downward from ceiling plate.
3. Connect gas lines:
   a. Remove plastic bag and protective caps from ceiling supply lines on connectors of Harmony Nexus EMS.

NOTE: *DISS connectors are size indexed to prevent interconnection of incorrect gas lines. If connectors do not mate easily, do not force. Check gas type coding, stamped on side of fitting, before proceeding.*

   b. Connect gas lines of Harmony Nexus EMS to ceiling supply lines. Tighten fittings securely and test for leaks.

Normal Settings

- Nitrogen – Supply gauge 160 psi ± 2% accuracy
- Instrument air: 125 psi ± 2% accuracy

Gauge Information

- Range: 1-300 psi
- Accuracy: 0-100 ± 3%
  100-200 ± 2%
  200-300 ± 3%

4. Once all gas lines have been connected, set gas supply lines away from any moving parts on or around the bearing plate and junction boxes.

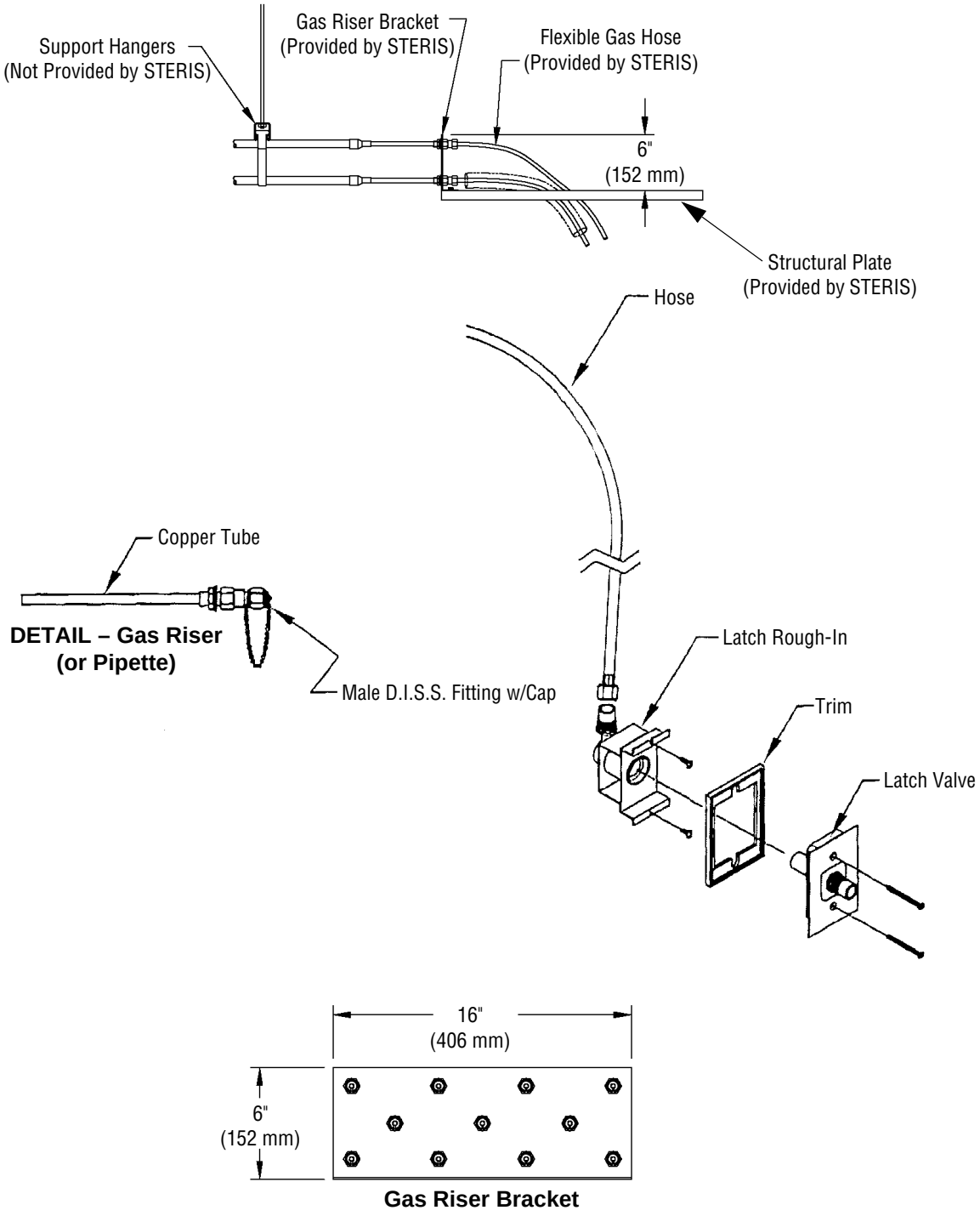


Figure 10-1. Gas Riser (Detail View)

10.2 Final Connection of Electrical Services

WARNING – ELECTRIC SHOCK AND BURN HAZARD:

- **Disconnect all utilities to the unit before installation. Do not install unless all utilities have been properly locked out. Always follow OSHA lockout-tagout and electrical safety related work practice standards.**
- **To avoid the risk of electric shock, this equipment must only be connected to a supply mains protective earth.**

NOTE: *Qualification:*

- Electrical connection of the EMS system may only be performed by a qualified electrician.
- Verify OR room is equipped with an isolation transformer.
- Please observe all applicable safety precautions. Review *SECTION 1, SAFETY PRECAUTIONS*.
- Prewired circuits are contained in flexible conduits.
- The number of circuits and how they are divided is dependent upon each individual user's requirements.
- The circuits and conductors are identified, specified and listed on the equipment data plate.

NOTE: *Construction Detail: When wire stripping is required, the strip length should be 8mm (5/16"). Stray wire strands are not permitted to be outside the crimp nuts. See Figure 10-8.*

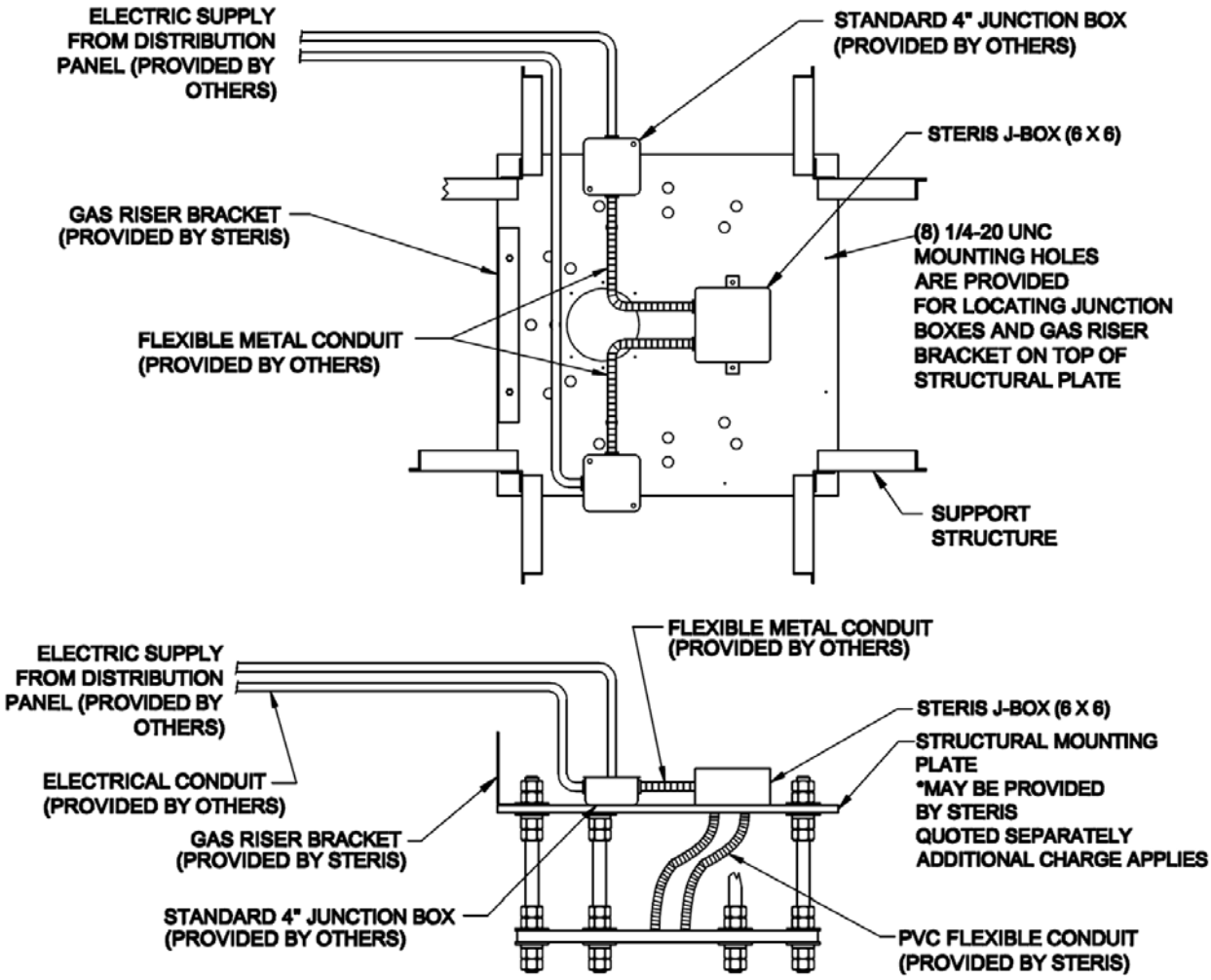

ELECTRIC SUPPLY FROM DISTRIBUTION PANEL (PROVIDED BY OTHERS)
STANDARD 4" JUNCTION BOX (PROVIDED BY OTHERS)
STERIS J-BOX (6 X 6)
GAS RISER BRACKET (PROVIDED BY STERIS)
(8) 1/4-20 UNC MOUNTING HOLES ARE PROVIDED FOR LOCATING JUNCTION BOXES AND GAS RISER BRACKET ON TOP OF STRUCTURAL PLATE
FLEXIBLE METAL CONDUIT (PROVIDED BY OTHERS)
SUPPORT STRUCTURE
FLEXIBLE METAL CONDUIT (PROVIDED BY OTHERS)
ELECTRIC SUPPLY FROM DISTRIBUTION PANEL (PROVIDED BY OTHERS)
STERIS J-BOX (6 X 6)
STRUCTURAL MOUNTING PLATE *MAY BE PROVIDED BY STERIS QUOTED SEPARATELY ADDITIONAL CHARGE APPLIES
ELECTRICAL CONDUIT (PROVIDED BY OTHERS)
GAS RISER BRACKET (PROVIDED BY STERIS)
STANDARD 4" JUNCTION BOX (PROVIDED BY OTHERS)
PVC FLEXIBLE CONDUIT (PROVIDED BY STERIS)

Figure 10-2. 6 x 6 Junction Box Detail

1. Locate hardware kit P/N P129387-619 (provided by STERIS) consisting of:

   P093933-105 –Junction Box –Bottomless (6 x 6"), Qty. 1

   P124290-106 –Screw 1/4"-20 UNC x 0.5" long, Qty. 8

   P150824-544 –Lock Washer 1/4", Qty. 8

   P093933-104 –Divider –Junction Box, Qty. 1

   P093933-098 –Plate, Junction Box – Bottom, Qty. 1

2. Locate junction box –bottomless 6 x 6” (152 x 152 mm).
3. Position junction box over one of the two 6” (152 mm) dia. access holes on top surface of structural plate holes. See Figure 10-3.

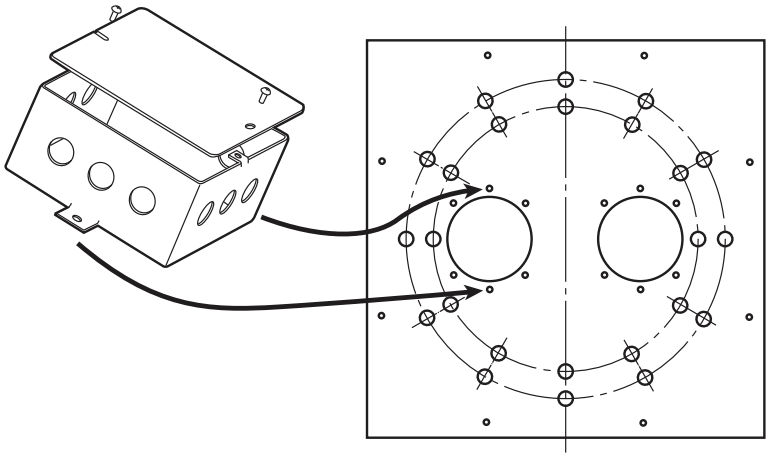


Figure 10-3. Position Junction Box Over Access Hole

4. Secure junction box using two screws 1/4”-20 UNC x 0.5” long.
5. Locate junction box bottom plate.
6. Position plate under the same 6” (152 mm) dia. access hole on the **bottom** surface of structural plate holes. See Figure 10-4.

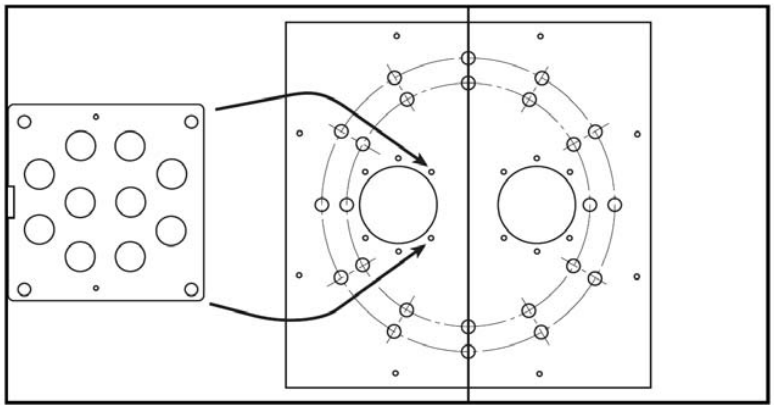


Figure 10-4. Position Plate Under Access Hole

7. Secure small plate to bottom surface of large structural plate using four screws 1/4”-20 UNC x 0.5” long by inserting screws into existing tapped holes in structural plate. See Figure 10-3
8. Attach divider (if required) by using #8-32 UNC x 3/8 screws (provided by STERIS). See Figure 10-4.

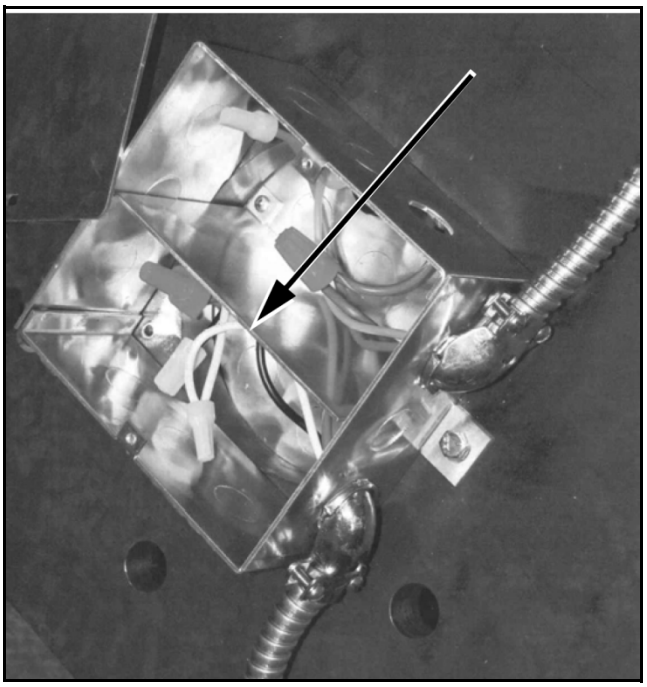
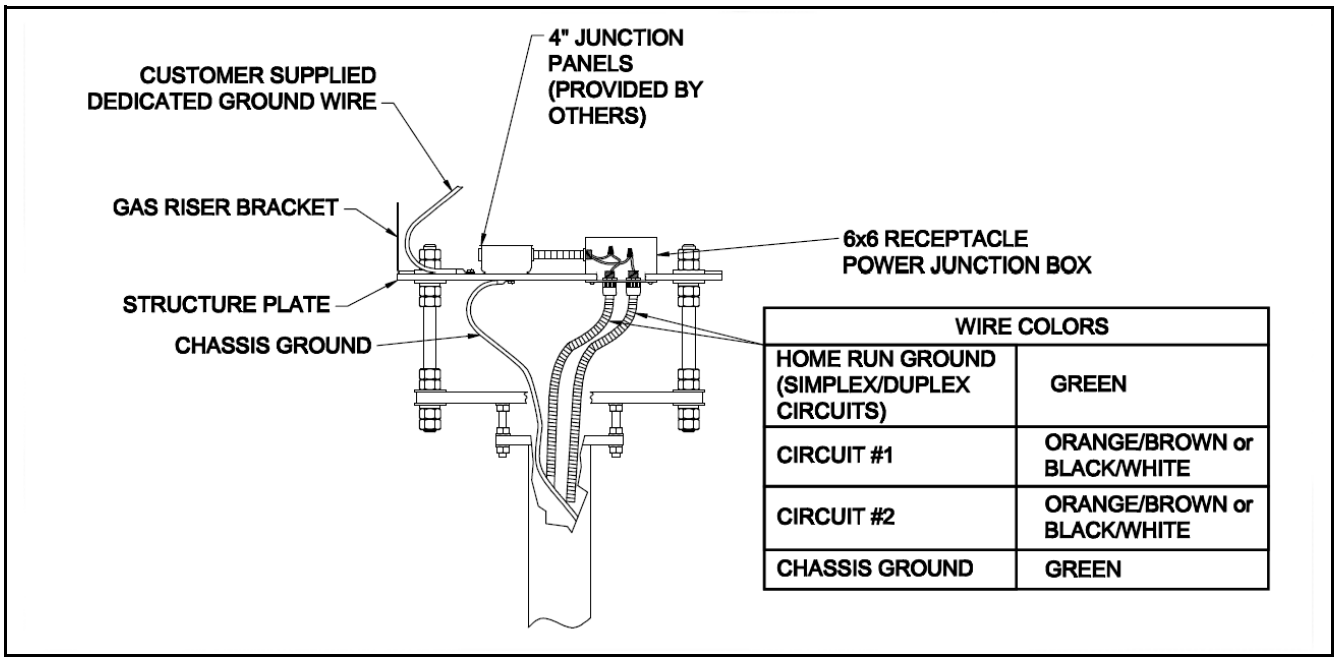


Figure 10-5. Attach Divider

Connect Duplex/Simplex Circuits

9. Knock out one (of 10 provided) 7/8" dia. access holes in junction box bottom plate.
10. Carefully route electrical conduit up to bottom plate and insert stranded conductors through the 7/8" dia. hole.
11. Secure (bulkhead mount) flexible conduit connector(provided by STERIS) to bottom plate using plastic nut (provided by STERIS).
12. Secure green chassis ground wire (running external to black flexible conduit) using 1/4" green ground screw and 1/4" star washer (provided by STERIS) to bottom surface of Customer support structure plate. See Figure 10-6.
13. Use crimp nuts (provided by STERIS) to securely connect each circuit to power supply.
14. Locate Customer supplied dedicated ground wire and run wire to ground screw on structural plate. See Figure 10-6.



WIRE COLORS	
HOME RUN GROUND (SIMPLEX/DUPLEX CIRCUITS)	GREEN
CIRCUIT #1	ORANGE/BROWN or BLACK/WHITE
CIRCUIT #2	ORANGE/BROWN or BLACK/WHITE
CHASSIS GROUND	GREEN

Figure 10-6. Secure Chassis Ground Wire

15. Verify resistance between ground screw and junction boxes does not exceed 0.1 Ohm.
16. Run a continuity test on all electrical connections.
17. Run an insulation test per conduit.
18. Replace access panel.
19. Turn electrical supply ON.
20. Verify all circuits are operating properly by measuring output voltages.
21. Turn electrical supply OFF.

NOTE: *Customer must bring power via Customer supplied metal conduit to junction box (provided by STERIS)*

a. Knock out the 7/8" dia. access holes in the side of junction box. See Figure 10-2 and Figure 10-7.

b. Secure Customer supplied metal conduit to junction box.

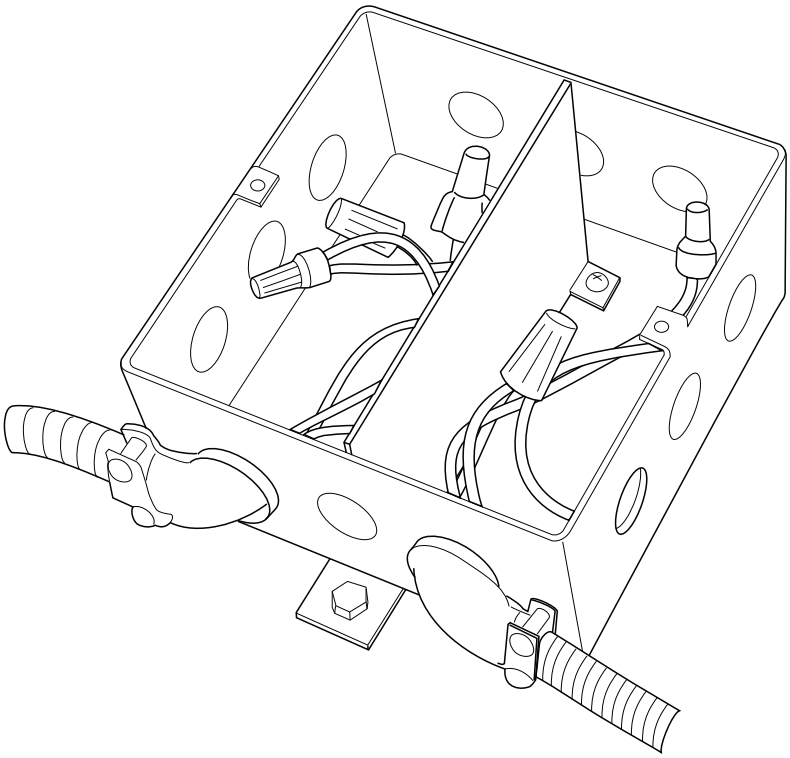


Figure 10-7. Secure Metal Conduit to Junction Box

Important: Verify all electrical power is OFF before making final connection. Review *SECTION 1, SAFETY PRECAUTIONS*.

WARNING – ELECTRIC SHOCK AND BURN HAZARD:

- **Disconnect all utilities to the unit before installation. Do not install unless all utilities have been properly locked out. Always follow OSHA lockout-tagout and electrical safety related work practice standards.**
- **To avoid the risk of electric shock, this equipment must only be connected to a supply mains protective earth.**

NOTE: *Stranded conductors installed by Customer must be filled with wire end connector sleeves or via use of a crimp nut.*

NOTE: *A terminal block is not provided by STERIS.*

c. Connect power supply lines using Customer supplied onsite circuit diagram and in conjunction with STERIS circuit diagram. See Figure 10-8.

d. Use crimp nuts to securely connect circuit to above ceiling electrical supply.

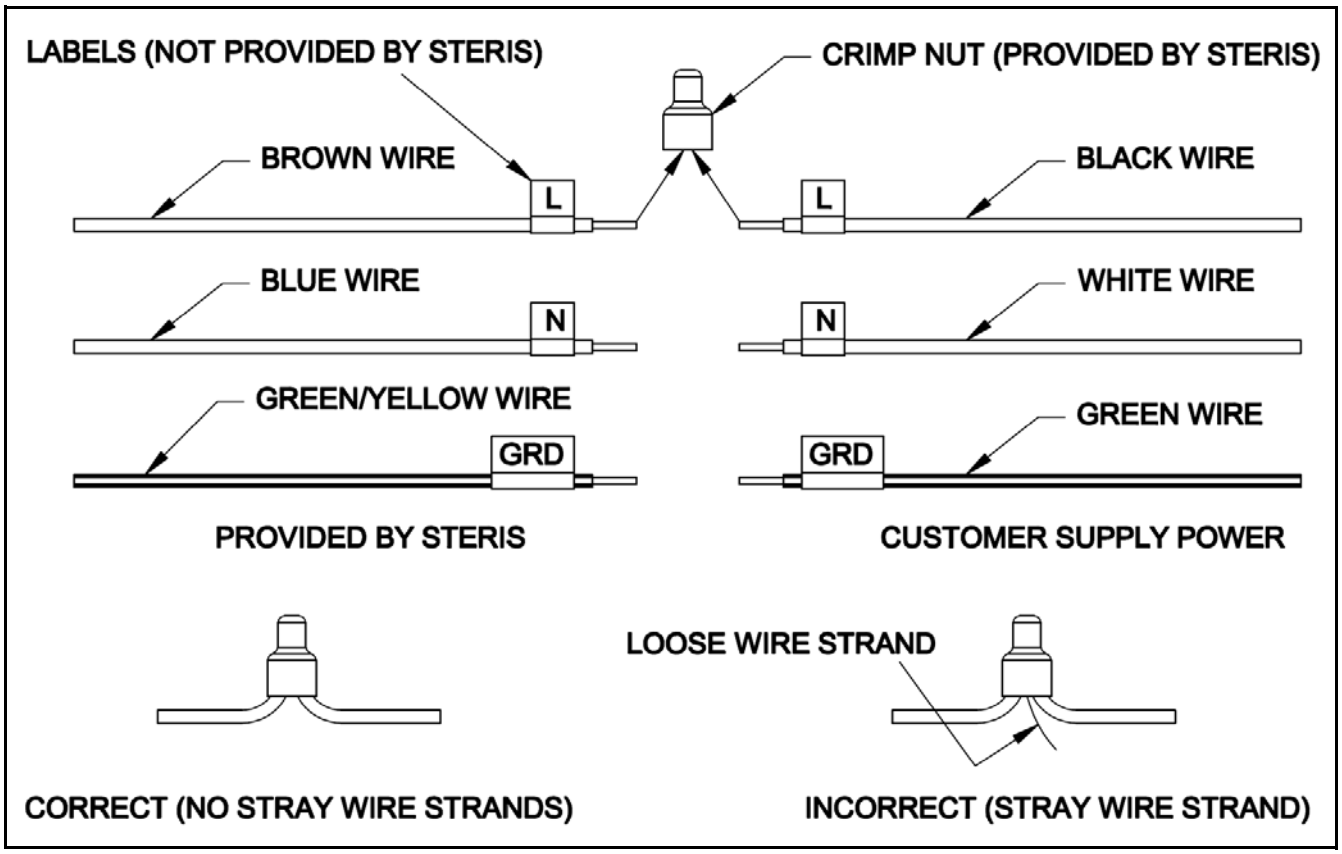


Figure 10-8. Wire Detail

FINAL CHECKOUT

11

11.1 General

Every unit must be tested and inspected according to this procedure whenever a part is adjusted, repaired or replaced. Items which do not comply to test procedures must be corrected or retested.

Important: Complete and mail in the Pre-In-service Checkout Card – P764331-894, to **begin** warranty period. Contact STERIS.

WARNING – PERSONAL INJURY AND/OR EQUIPMENT DAMAGE HAZARD: Repairs and adjustments to this equipment should be made only by fully qualified service personnel. Maintenance performed by inexperienced, unqualified personnel or installation of unauthorized parts could cause personal injury, invalidate the warranty, or result in costly damage. Contact your STERIS Engineering Service representative regarding service options.

11.2 Test Instrumentation Required

- Voltmeter
- Ohmmeter
- Calibrated volumetric pressure test gauge – must read 0 to 200 psig (0 to 1,379 KpA)

11.3 Functional Test

1. Compressed air (if applicable) may be contaminated. Verify availability of nitrogen or industrial air.
2. Verify electrical supplies are connected to unit.
3. Verify rotational stops are set to prevent support head and accessories from striking walls or other equipment.

11.4 Electrical Test

1. Measure voltage at each electrical receptacle. Measured voltage should be equal to voltage supplied to unit.
2. Check each grounding pin for impedance (0.1 ohms maximum).

11.5 Supply Lines Check

1. Check gases, medical air and compressed air pressures supplied to unit. Refer to equipment drawing for recommended pressures.
2. Check correct gases are supplied to proper corresponding outlets.
3. Inspect all lines for chafing or kinking. Damaged lines must be replaced.
4. Using leak detection fluid, check all line connections for leaks.

NOTE: *NFPA certification and/or verification of gas supply lines is not by STERIS.*

11.6 Leak Test (not provided by STERIS)

Leak test, using clean, oil-free, dry Nitrogen, for all gas lines (during test procedure) in accordance with applicable codes.